

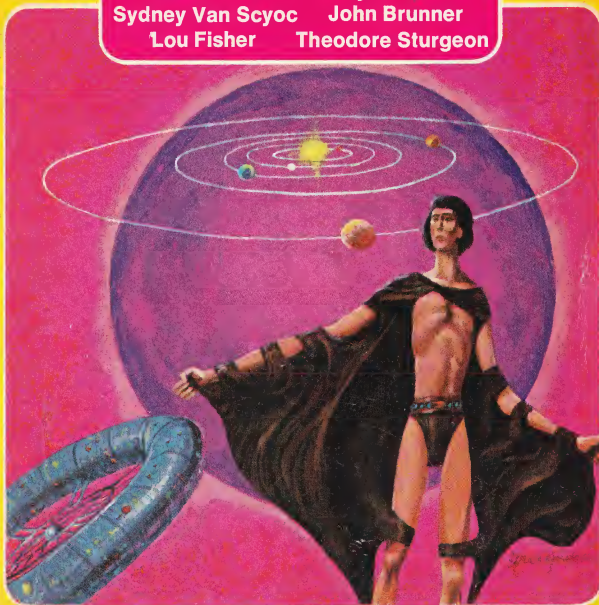
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SERIALS

THE ORG'S EGG (Part I)

Frederik Pohl and Jack Williamson 6

WEB OF EVERYWHERE (Conclusion)

John Brunner 124

NOVELETTES

MINDHUNT, Robert Wells 44

SKYVEIL, Sydney J. Van Scyoc 74

SHORT STORIES

THE DISCOVERY OF EARTH, Stephanie Tripp 102

OUTFIELDER, Lou Fisher 108

SCIENCE FACT

A STEP FARTHER OUT, Jerry Pournelle, Ph.D. 94

FEATURES

GALAXY STARS 43

GALAXY BOOKSHELF, Theodore Sturgeon 118

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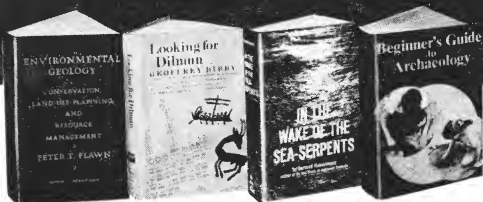
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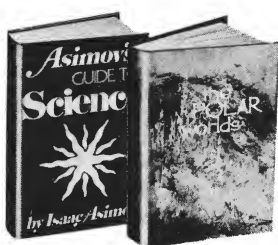
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THE ORG'S EGG

FREDERIK POHL and JACK WILLIAMSON



***Other men could die and find
oblivion. He could not . . .***



I

THE mountain was friendly. It had been growing for half a billion years, its slow cells feeding on rain and air and wind-blown dust, compacting them into a core of solid quartz.

Fifteenth lived on the mountain with his people. When he had been young and small the mountain had been his whole world and he had not imagined anything beyond it. Now he was nearly grown. From time to time, now, he looked beyond the mountain, though it was still home.

It was not all hospitable. Its summit was a rounded crown, carved with winding fissures, glowing with a blue bioluminescence brighter than the storms that often boiled around it. Below the summit, where the winds were warm and dry, the surface film of



shining life was tattered into dying shreds. The age-eaten stone beneath was caving away from the vertical cliffs, adding black and shattered masses to the bouldered slopes, where the wild orgs nested. Fifteenth had never gone that high. It was too dangerous.

Home was here below, where the dead stuff of the mountain had rotted into rich black soil that spread in delta plains all around its foot. Floods from the stormy heights ran down to water the forests and mosslands that reached all the way to the grassy flatland where the people ranged to find food and trophies and brought them back to the sweet slopes of the mountain.

Fifteenth's people were nomadic wingmen. From the heights on the side of the mountain they could launch themselves into always present orographic updrafts and spiral out to overfly the green rain paths of the plain. There were roots and fruits, waterholes and game. When the wingmen found what they wanted they swooped down and possessed it. It was a good life. It was the only life Fifteenth had known—yet it was not good enough.

He looked around the camp of his people, testing a thought that had come to him. Across the flat plains rose that other distant mountain that his people called Knife-in-the-Sky. It was hard to see because of the uncertain light from

the plains and the few forested parts of its slopes. Fifteenth's people had never seen a cycle of light and darkness. They marked the passing of time by their own body cycles or by changes in the trees and animals, since they had no other clock on a world that showed nothing in its sky but clouds and, rarely, some faint misty gleam that looked like a swirl of silvery fire. But even when they could not see Knife-in-the-Sky the people knew it was there. For every org on Fifteenth's own mountain, it was said, there were a thousand on Knife-in-the-Sky. Here their clutches were scant and often the eggs produced weaklings. But new orgs were always coming from Knife-in-the-Sky to replenish the stocks.

Once Fifteenth sat staring at the distant jagged peak for many thousands of breaths. Then he went to tell his brother that he had resolved to leave his people, to cross the plain, to climb Knife-in-the-Sky and steal a wild org's egg.

“YOU are young,” said his brother wearily and fretfully, “and you are foolish. Other youths have gone hunting the org. They do not come back.”

Fifteenth stood stubbornly silent, hanging his head. His brother was the head of his clan, the clan in which fourteen other males were older and therefore more powerful than himself. Fifteenth did not

want to show disrespect to his brother by disagreeing, but he could not make himself promise to give up his plan.

"Only those whose minds are on the ground hunt orgs," warned his brother.

Fifteenth still did not speak. They were standing outside his brother's new tent, pitched in the yellow light of a clump of fire-trees. His brother's new wife was singing in the tent, grinding grain for the next meal. From beyond the fire-trees the slow clang of a blacksmith's anvil rang. The smith was Fifteenth's cousin, Second.

The brother carefully worked his awl through a double thickness of leather before speaking again. Then he looked up.

"If you stay with us I will share my skills with you," he offered.

Fifteenth showed his astonishment. Their father had been a wingwright. As was proper, his skills had come down to the eldest of his sons. With a new wife, First would surely have sons of his own before long and his giving wingwright skills to Fifteenth would deprive his own get of what was rightly theirs.

"I thank you," Fifteenth said. "But I will go."

"Knife-in-the-Sky is farther than it seems to be," his brother said. "Why go there when there are orgs here, if you are determined to die?"

"There are better orgs on Knife-in-the-Sky. I have never seen their

lair here. I know what they are there."

"From your mother," First said gloomily. "Of course. But there are more orgs and stronger orgs there and they take care of their eggs. Besides—" He looked up from the harness he was mending and scowled across at the jagged, distant mountain. "Besides the orgs, there are the watchers."

"Why should they bother me?"

"They do not tell us why." His brother looked up angrily and incautiously pricked his finger with the awl and grimaced with pain. He put the finger in his mouth and said around it, "They live beyond the mountains. They ride in the sky in machines the size of twenty orgs and attack all creatures that don't obey them. And there are new watchers now. Little ones. No one knows what they may do."

"I've never seen a watcher," said Fifteenth.

"Not on the mountain. But to get to Knife-in-the-Sky you must cross the plain. You cannot do it all by wing. You must walk for many sleeps. I am afraid the watchers will find you."

"But if they do not," said Fifteenth, "I will come back riding an org."

"You—riding an org?" The brother took his finger out of his mouth and spat blood. "You've never seen an org close up."

"My mother did," Fifteenth said.

HE TURNED and scowled across the plains toward Knife-in-the-Sky. He was a strong young man, tall even among his people, who averaged better than seven feet in height. He knew he looked a great deal like his mother—his father's second wife, whom his father had stolen away from another band. She had been a First Man's daughter and her father had pursued the lovers on a tamed org until they had set fire to dried grass and escaped under the smoke. She had handed on her lore of org-training to her son, teaching him where the eggs were found, how the hatchlings could be tamed.

It was time for him to use that knowledge. Because he was of an age to use it—and for another reason. The girl who had become his brother's new wife had been the girl Fifteenth himself had wanted.

The brother picked up his awl again. "If you have to be a fool—" He shrugged and suddenly grinned. "I'll make a new harness for you."

And so, for many meals, Fifteenth hunted meat while his brother made the harness. The dark-eyed girl who had become his brother's wife helped him smoke the meat, and if her presence near him was a steady pain he never showed it. And if she knew she never told.

When the harness was finished and fitted he loaded himself and the three of them trudged up the friendly mountain toward the finest

of the launching places. There the slope fell steeply away for a thousand feet. There the gentle cradling updraft never failed. From this cliff one could circle and soar more than a mile into the thick, sweet air and launch oneself many sleeps away across the plain in a single flight.

They stood and stared at Knife-in-the-Sky and the dark-haired girl caught her breath and cried, "A fire in the clouds! Look!"

Before them, even higher than Knife-in-the-Sky, a lance of silvery light was extending itself in a soaring arc through the bright living clouds. Neither Fifteenth nor his brother was frightened, although it was a strange thing to them.

The brother muttered, "There was such a flame a hundred sleeps ago. Afterward the small watchers appeared."

"Has anyone been harmed by a small watcher?" Fifteenth demanded.

The brother shook his head.

"Then I will not fear if there are more. Goodbye."

Fifteenth kissed them both, grasped his buttocks with his hands and leaped headfirst into the air. When he was well clear of the rock he swept his arms up in the sinuous stroke of the wingman, extended filmy wings of scraped leather. He flapped and soared until his brother and the girl were almost invisible to him, tiny staring figures no larger than pebbles.

Then he turned out of the up-

draft and stroked through the air toward Knife-in-the-Sky.

He did not look behind him.

Even if he had looked he might not have seen that something shared the air with him, a cube of metal, bright on all its faces, brighter still with lights and lenses on the face toward him. It was no larger than Fifteenth's fist and a long way behind him.

A GREAT distance away in terms of Fifteenth's world (but only a step on an astronomical scale) a man named Ben Linc Pertin watched the holographic image of a flying primitive and turned away, shaking his head. "They're skinny and funny-looking," he said, "but, by God, they're human. Figure that for me, Venus."

The girl beside him was not a girl. She did not look like a human girl except in the way that a statue does. She was silvery metal, thixotropic, anisotropic, tamed by the science of her people to flow and move like flesh. On her home world Venus had not looked human at all—for that matter she had not been female, because her race had not bothered with sexual distinctions in its development. She said, "It is not only human beings who live on Cuckoo, Ben Linc. We have already found Sheliaks and Boaty-Bits—or beings genetically parallel to them. And we have only begun to look."

"We haven't found any of your

folks, though," observed Ben Linc cheerfully. "Guess you weren't popular."

"As to that, Ben Linc, how could you tell?"

He grinned. Venus was an edited form of her species, specially tailored to operate in the Earth-normal environment of Cuckoo Station.

He said, "I suppose we might as well retransmit these tapes. I think we need help, Venus. More equipment, more survey scouts. And more beings. I think it's about time we sent people down to Cuckoo. What do you say?"

The silvery girl was silent for a moment. Ben Linc knew that, through her Pmal translator, she was communicating with FARLINK, the computer that processed all the manifold information-handling procedures on the orbiter called Cuckoo Station.

FARLINK was the station's nerve center. It processed the tachyonic transmissions that replicated new personnel for the station. It coordinated reports from the drones they sent down to the surface of the strange object. It stored cumulative data, solved research problems and sent findings—such as they were—back to Sun One.

Its main terminal was a ring-shaped console inside the hollow hemisphere where Pertin, the silvery girl and other beings were working. The beings on duty sat inside the console or rested or clung

or stood there as their anatomies dictated, with input devices within reach of their manipulative organs. The output flashed and shimmered on the screens that lined the dome, translated into the visual symbols of half a hundred cultures.

Ben Linc became impatient. "What's the matter, Venus?"

She did not move but her expression, as far as she could be said to have one, seemed to cloud. "There is difficulty," she said.

"Difficulty?" That seemed unlikely. FARLINK was as close to perfect as any machine ever made. It owned its own built-in power sources and many tachyonic channels linked it to the banks of the even larger computers and research teams back on Sun One. And yet . . .

Abruptly, before Ben's very eyes, the myriad screens suddenly flickered and went black.

There was an instant rumble of consternation. Cries and hoots and clangs of shock echoed all around the ring. From the console position nearest Pertin's own a scorched-fur scent of T'Worlie dismay came from the bat-headed, butterfly-winged being named Nimmie.

"What the devil?" he muttered. The screens were black for only an instant. Then they glowed with the green computer signals that spelled out the same message in half a hundred languages.

REGRET INTERRUPTION. INTERFERENCE DISTORTING INCOMING

SIGNALS. ORIGIN OF INTERFERENCE NOT KNOWN.

Venus whispered, "We've never had any interference before—"

Pertin had no answer. Suddenly he felt very lonely. The tachyonic channels were the only bridge of thought and communication across a gulf of space that was too vast for anything material to cross. With the bridge broken, the thirty thousand light-years between all the beings on board and their diverse homes became terribly real.

The T'Worlie beside him was fluttering on frantic wings above its console position, stabbing at the keys and whistling at its mike. After a moment it rose from the keyboard and turned its five-eyed face to Ben.

"Mode emergency—query implications of signal distortion."

"I wish I knew," Pertin said, shaking his head.

"Propose conjecture. Assume sentient masters of Cuckoo. Query. Have they discovered us? Are they initiating contact? Query probable intentions."

"I don't know, Nimmie. Do we know where the interference comes from?"

The T'Worlie spun, punched a combination and all the myriad screens lit up.

SOURCE UNKNOWN. DF PROGRAM INITIATED.

And then, abruptly, the green symbols shimmered off the screen. Patterns of color flashed and van-

ished in the deep tanks that were their three-D vision screens. A new message appeared.

INTERFERENCE FADING. STAND BY. SIGNAL RECEPTION RESUMING.

The Sun One sign burned itself onto the screens—a red disk inside a thin green ellipse: the artificial satellite called Sun One, inside the galaxy. Before it appeared the tall, glowing cone of a Sheliak official, back at Sun One. He was speaking, apparently oblivious of the interruption, while his translator turned his soft hooting into Earth English on Ben Linc's screen. Green symbols overrode the image for a moment.

INTERFERENCE HAS CEASED. SOURCE NOT TRACKED.

Venus and Ben Linc looked at each other.

"What was that all about?" he demanded.

Slowly she shook her silvery head. "At any rate, it's over." All around the dome beings were resuming their interrupted chores. "One moment, Ben Linc." Then: "Yes, we have concurrence. We authorize you to transmit a call for additional survey forces."

Ben Pertin nodded and cued in the tachyon transmitter. Carefully he began to phrase the report that the tachyons would flash toward the distant galaxy and to the artificial planet called Sun One—where all the races of the galaxy maintained the headquarters that had launched this survey party—

and from there on to the home planets of scores of kinds of beings. His words might sooner or later reach his own world, Earth.

Ben Linc wondered if somehow, back on Earth, that original Ben Pertin who had volunteered for tachyon transmission long before might hear the voice of his double.

But that was not profitable wondering. Behind it lay too much pain, too much loss, too many regrets for what could never be undone—including the memory of the girl he had married on Sun One. Zara had not lost her husband, but Ben, her husband, in this copy at least, had lost his wife, forever. And it hurt.

II

ALTHOUGH Fifteenth was strong, launching himself from the ground was hard work suited only for emergencies. When at last he began to run out of strength on his first long flight across the plain toward Knife-in-the-Sky he was careful to choose a landing spot where hillocks would give him a small height advantage for the next launch. A tall tree would have been better, but here he saw only fire-trees and bee-trees and neither was any good for climbing. No matter how careful you were, when you climbed fire-trees some of the fire clung to your skin and, although it did not seem to do immediate harm, after a time you sickened

and died. And bee-trees were guarded by beings with a disposition to assault invaders en masse.

He did not sleep on his first landing, only ate from the stocks he carried, rested drowsily for a thousand breaths and then launched himself again. Flying over the marshes was unsatisfying. There were few updrafts—and those only weak ones—to climb in. Nearer home, generations of wingmen had located reliable springs of rising air in many places—where the lowest slopes of the mountain shaped the wind or where, for some reason, the ground was always warm. But he was already at the edge of the known world as far as his people were concerned. He could recognize some helpful signs. Nearly always fire-trees meant rising air, not because the trees themselves were warm but because they grew only in warm soil. But the stands of fire-trees here in the marshes were spindly and infrequent.

So he climbed mostly with the power of his lean, long arms and chest muscles and flying was steady work. But his purpose held and after every rest or meal or sleep he launched himself again and drove on toward Knife-in-the-Sky.

He had known that mountain all his life, but he hadn't known how far it was. He slept twenty-three times crossing the alternating marsh and flatlands past the edge of the grass, and eighteen times more crossing what was pure

marsh, where he could rest only on hillocks and the steamy mist that rose around him while he slept was malodorous and cloying. Each time he knotted the count into the cord around his throat when he awoke, and looked toward Knife-in-the-Sky—and still it seemed no larger.

Beyond the marches he crossed a seemingly endless carpet of thick bright moss that had a strangely sharp smell—he associated it with the electrical storms that rolled around the upper reaches of his mountain. It made him sneeze. The moss bore no fruit, gave him no game. He counted twenty-eight sleeps on his way across it and came out giddy with hunger and thirst.

He came down, with the last of his strength, on the bank of a shallow river that rimmed the moss world. He kneeled and drank the black water until he began to feel ill. Then he looked for food in the forest on the far bank. Its plants were club-shaped and leafless, shining with their own cold light like dwarfed, warped fire-trees. Shining daggers of thorns guarded the hard red nuts they bore. He picked a few doubtfully and looked farther. But there was none of the game he knew from the grasslands near his home—he saw none of the fleet four-legged herd animals, or the horned, two-legged hoppers. His arrows killed a small weakly flying thing that fed on the nuts, but its flesh was tasteless and dry. He roasted some of the nuts and

felt sicker after eating them than he had felt before.

He summoned the strength to pitch his wings together to make a tent, pegged against one of the club-shaped trees. He rolled inside, curled up in a ball and tried to sleep. It was not easy. Fifteenth had never known insomnia, but he had heard old people speak of it sometimes and now he understood what the word meant. He was drained and aching. For the first time he began to wonder if he were not as crazy as his brother had said. His brains truly felt as though they were bound to the ground. His thoughts could not rise and fly—they were weighted by fear and misery and depression.

After a time he decided that he must eat, no matter what, and crawled out again.

Here in the marshes the sky was darker than on the slopes of his mountain. There were fewer fire-trees and the light from the steely bright moss on the far side of the river was of little help.

He felt dizzy and faint and when he saw the bright cube that whirled away out of sight he thought at first it was the imagining of sickness.

NEVERTHELESS, his brain cleared almost at once. Once or twice before, during the long flights over grass and marsh and moss, he had thought he glimpsed something small and bright pursuing him at a great distance. But it had always

hung just at the threshold of visibility. He knew that the watchers traveled in huge things that were bright and shiny. But this did not seem very large and until now it had never come close. He had heard of the small new watchers—was this one of them? He could not say.

All he could be sure of was that it had not harmed him so far, but certainly it would never have a better chance to do him harm than while he lay shaking and weak in the wing-tent. He had left shelter just in time. To have glimpsed the thing gave him much to think about.

The efforts of thinking seemed to sharpen his mind and his will. He must regain strength before he slept. He stood up, drank again from the river and began to search for the sprays of flame-bright red bloom he had seen from the air. These marked clusters of a thick-rooted plant. When he found them he dug out roots and uncovered nests of blood-red worms he had heard older wingmen of his people describe as edible in bad times.

The roots were sweet and white and good—the worms less good. They were gritty and revolting raw, but he made a fire and soon learned to clean them of their digestive sacs before broiling them. He ate his first satiating meal in many sleeps, rolled back into the wing-tent and slept well, despite his alertness to possible danger nearby.

He stayed by the riverbank for

three more sleeps before he felt strong enough to pack himself with roots and smoked worms and go on again.

He flew steadily and low, saving energy, careful with the worn bands of his harness. He strained his neck, ceaselessly scanning the sky all around for orgs or for another sight of the small watcher that had fled from him by the river, searching the forest for signs of game, studying the horizon for evidence of updrafts that might help him.

The dully glowing forests now sloped sharply upward. He slept seven times in a belt of fog and rain. With Knife-in-the-Sky lost in the lowering sky his target was gone. He set his course as much as he could by following the upward slopes. When those signs failed—were doubtful—he drew from his harness the one gift his mother had given him that had been her father's.

It was a crystal-cased object that glittered like the small watcher. Inside it a needle spun freely, but seemed ever to quiver toward a single direction. His mother had not known much about it, except that the wingmen of her people had used such devices to mark the direction of flight when landmarks failed.

The air grew colder as he climbed. When he camped for one sleep on a moss-grown rock he awoke shivering and chilled. He crept stiffly from beneath his tented

wings and found the low clouds gone.

He looked up and caught his breath.

KNIFE-IN-THE-SKY filled all the world ahead. The forests lifted toward it forever, rising piles of pale brown and gray and ivory, splashed with vast black masses of fallen stone.

So high he had to stretch his neck to look, the mountain itself rose out of those broken boulders. Walls of black rock marched up and at the top of that unclimbable wall, higher than he could imagine, the jagged summit slashed across the rippling colors of the sky.

He studied that summit for a long time, looking for orgs, while the damp wind that blew down the slopes of the mountain numbed him with unexpected cold. He knew the orgs were there. They were always there—when they were not sweeping down to the lower slopes and the marsh and the grasslands and forests, seeking prey. Perhaps those distant black spots, so hard to distinguish from the motes of dust one sees on the surface of one's own eye, were orgs—he could not tell. Whatever, they were still a long way off. He stepped back to see more clearly over that giddy wall, felt a sudden gust as he was caught off-stride. The ground slid away under him. He grabbed wildly for the anchor rope that secured his tented wings, but his chilled fingers

slid off it. The wind spun him off the rock. He flailed his arms, trying to get his balance. The moss was slippery and the cold had made him clumsy. He went sprawling over the edge.

The fall was only twenty times his height, so there was no real danger. Even without wings he could glide to some extent. He picked out a landing spot where a bank of crimson moss promised some cushion, stretched out his arms, writhed and landed not too badly, considering the sluggishness of his muscles from the cold. A pink cloud of spores rose around his plowing feet and partly blinded him. He sprawled, sneezing and choking, then stood up and looked around.

He could see across the great bowl of marsh and plain almost to the lift of his own mountain. Past the brown and yellow slopes beneath him the moss world made an endless sea. The marshes beyond were traced with thin black lines of rivers. In the hollows lay white fog.

He turned and looked up the rock to where his tented wings and supplies were. Without wings he could not fly, but he could still climb. Unfortunately the rock was steep and he could not trust his stiffened fingers to seek out holds in its crevices. He would have to climb the long way around.

Without wings the feat could be dangerous. The combination of low gravity and dense atmosphere that his world possessed made the lifting

of mass easy, but unbalanced the equation of wind versus inertia. Caught by a gust on a vertical face, it was quite possible he could be flung so far out that even the slow acceleration of his world's gravity would crush him when he struck ground again. So he sought an easy way and sprang carefully from point to point. He was concentrating so hard on his task that he almost did not see the small watcher as it swooped past his head and spun toward the place where his gear waited for him.

FIFTEENTH shrank back into a crevice in the moss and waited for attack.

The attack did not come. Actually this small watcher did not seem menacing to him. Yet what could it want with his gear? He could hear nothing. He could see nothing—then, in a flash, he saw something startling—a bright flare of golden light that washed the side of the mountain and disappeared in a moment.

Cautiously Fifteenth eased his way out of the little fold in the terrain and stretched himself to peer upward. He listened, looked, smelled, reaching out with all his senses. They told him nothing.

He squatted for a hundred breaths, considering. Strictly speaking, there was nothing on the rock that he could not do without. Food, spear, bow, wings, harness—he could not make them as well as

the specialists among his people, but he could make them well enough to get by. The wings and harness would be the most difficult, but he had seen enough of his brother's work to know that replacing them would not be impossible.

Still, the gear on the top of the rock was his and he wanted it back.

If the small watchers were the same as the big ones his only option would be to flee—and to do so would almost certainly be useless, if his brother's stories were halfway true. But he did not think there was any hostility stored in the glittering little cube he had seen.

So with great daring, slowly and cautiously at first, then more quickly and openly, Fifteenth made his way around a boss on the mountainside, up and over it, and emerged above the rock where he had slept.

He had not known what to expect, but he had not expected what he saw.

The cube was no longer simply a cube. It hung in air above the moss, not far from his wing-tent, steady as though it were nailed there, not dipping or even trembling in the winds. But it was growing something. From one face of it a glowing, filmy bubble was spreading to form a sphere almost the height of Fifteenth. It became larger while he watched.

The sphere stopped growing. For dozens of breaths nothing happened, unless a shadowy sort of

movement inside the sphere meant something. Fifteenth could see his gear waiting for him. He could detect no harm in the cube or the bubble.

He did not come to a conscious decision, but in a moment he discovered that his legs were gathering under him and he sprang toward the top of the rock. He turned in air to bring his feet under him, landed well, spun to face the small watcher.

And then something did happen. There was another flash of that intense golden explosion of silent light and for a moment he was blinded. And when he could see again at all he saw that the bubble had broken open, sliced from within like an org's egg, and out of it was stepping—what? A man? Short, fat, squat, dark, curiously clothed—but yes, a man.

III

THE figure that came out of the bubble was twice as wide as Fifteenth and nearly a head shorter. It wore strange bright clothing.

The wingmen and their women wore no more than they had to—the harness to hold their necessities and fasten to their wings, a few square inches of cloth or shaved leather for ornament, a few more for modesty.

By Fifteenth's standards this man was fearsomely overdressed. His clothing covered nearly all of

him. From waist to feet he wore a sort of bright yellow, loose second skin, which vanished under bright-colored soft boots. From waist to shoulders he wore a sleeveless tunic. His wrists were ornamented with broad, bright-colored bands that looked like leather, but were in colors—blues, greens and mauves. They dangled little pouches and bright shiny things that glittered and seemed to move. Even the man's head was covered with a soft cap of bright orange color—with such apparel he could never hope to avoid being seen by org or watcher or game.

His costume and his strange proportions were not all that was different about him. Even his face was odd. He was surely much older than Fifteenth, two or three thousand sleeps at least. But his face did not show it. It was not weathered or lined from wind or storm. His teeth were bright and even, as perfect as Fifteenth's own.

All this Fifteenth saw in the same photographic glance that told him that the man carried no weapon. None at all—neither bow nor knife. Not even a club. Even so, he might not be without danger. His squat frame had the look of strength.

The man took a step toward Fifteenth. It was not menacing. It was comic. Fifteenth had never seen anything like it. The man's step was grotesquely energetic—it propelled him into the air. He came down, stumbled, caught himself,

fell again in overreaction and sprawled to the ground. The expression on his broad face was funnier than his ungainly tumbling act itself. Fifteenth could not help laughing. From the ground the man laughed, too.

Then the man stood up carefully. He spread his hands as though to show he had no weapons. Fifteenth already knew that. He made no move.

The man did something to the shiny baubles on his wrist. Then he spoke.

His voice came from two places at once. It came from his mouth and from the bauble on his wrist. The sounds from the thing on his wrist were not the same as the sounds from his mouth, but Fifteenth could understand neither of them. He bent his head in the gesture of negation.

The man seemed irritated with his toy. He touched it again and spoke once more.

This time Fifteenth thought he caught the suggestion of a word. Strangely, it came from the man's wrist, not his mouth. And the rest was gibberish.

The man shrugged and let his arm fall to his side. Then he grinned, touched his chest and spoke a single word. The sound of it was *Ben*. The man waited inquiringly, as though expecting a response.

Fifteenth was not sure of what was expected of him, other than

that the man seemed to want him to speak. The man gestured, pointed to his wrist and made several other sounds. One sounded like *pmal*, pronounced very slowly and carefully, but what it meant Fifteenth had no idea.

He said, "I don't know what you want me to do."

The man applauded, grinned, motioned for more.

"Well," said Fifteenth, "I am Fifteenth of the men in my people." He paused a little suspiciously, but the man urged him on. Hesitantly Fifteenth continued: "But I am far from my people and no longer one of them," he soliloquized. "So perhaps I can have only a word-name, like an outlaw or a woman. Are you an outlaw? But I am going to get an org's egg. I will hatch it and tame the org. Perhaps I will call myself Org Rider." He finished and fell silent, listening to the pleasing sound of the name in his mind's ear.

Excited, the man touched his wrist and spoke again. This time the words from his wrist made sense. They were poorly pronounced, but clearly enough they said: "I am Ben. You are Org Rider."

The man saw that communication had begun. He spoke again and the thing on his wrist stuttered, emitted a few nonsense syllables and then, very clearly, said, "My people far."

He gestured for Fifteenth to speak again.

But Fifteenth had heard something else. Frowning, he turned to search the sky.

The sound was strangely ominous, like the hum of a bee tree. His first thought was, *Org!* Yet the sound was wrong. It was not the harsh scream his mother had described, but something even more fearsome.

Then he saw it—a faint silvery glint high above.

Watcher!

IT WAS a spearpoint in the sky. It had no wings, but it moved so fast the boy could hardly realize what was happening. The man heard it, too. Astonishment spread across his broad face. He turned, bounced toward the silently hovering small watcher, fell clumsily but righted himself and touched the ship with quick, skillful hands.

At once one face of the small watcher glared with a bright golden flame and a bubble began to grow out of it.

Fifteenth did not stay to observe this performance. He ran for his weapons. He did not know what good they would be against a watcher, but no other options were open to him than to use them.

A bright flash of light from above gave him a split second's warning. Then something crashed nearby. Strange yellow flowers bloomed on the black rock and faded into pale smoke. A sharp reek of burning choked him.

The bubble from the side of the small watcher had grown tall now—abruptly it flared brightly golden. Fifteenth was staring directly at it when it happened. For a moment he was blinded. Bright lights were out of his experience entirely, except for lightning and the smoky glow of a campfire—the eyes of his people did not have quick recovery mechanisms. He could not distinguish just what was happening.

Then he saw that the man named Ben was clawing at the bubble, trying to drag out of it some glittering object that had appeared inside. Again there came that sudden crash. A flash of light flared behind and above him and yellow flame and smoke exploded on Ben. There was a terrible scream. Splinters of rock tore at Fifteenth's flesh. A hot, choking odor took his breath.

Then blackness drowned him. His bow was in his hand, but he had not had time to raise it, or even to see what had killed Ben and was almost killing himself.

CONSCIOUSNESS returned out of a crazy pain-filled fantasy that was not a dream but a memory. He lay face down on hard, wet gravel. He was shivering in a cold, slow rain.

His first feeling was one of astonishment at being alive. His second made him wrap his wings around himself to cover his nakedness against the rain.

When he tried to move something tightened around his neck so that he could hardly breathe. Panic shook him. He tugged at the coil choking him, but it would not loosen. His hand flashed to his knife, but it was gone. He was tied by the neck like a food beast awaiting slaughter.

Sitting up more carefully, he managed to get to his feet. He saw that he was tethered to a great spearhead-shaped machine that lay on the gravel. It was mottled in brown and yellow, but underneath was the glint of silvery metal.

Ten paces away lay the butchered squat corpse of Ben. A faint mechanical squeal came from the silvery cube of the small watcher that had brought him. It would bring no one ever again, for the explosion had blasted it. It lay sparking feebly, cracked and broken, on the gravel.

"Good to see you awake, boy."

THE booming voice caught Fifteenth by surprise. He moved abruptly and was jerked back by the choking coil around his neck. When he caught his balance he saw a man taller than himself, red-bearded, green-eyed, grinning and rocking on his feet by the small pile of weapons and wings.

"Who are you?"

"Why," said the man, "you can call me Redlaw. You're a long way from home, Fifteenth."

The boy kept off his face the sinking astonishment that this man knew his name. "I am not Fifteenth any more," he said suddenly, a little surprised at himself. "My name is Org Rider." For some reason he knew this was now true. He had ceased being the Fifteenth among his people. He stood alone—a man.

Redlaw's laugh boomed out. "An Org Rider without an org? Your brother was right, boy, you're a fool." Then he said, not unkindly, "Oh, don't be surprised. The watchers don't only watch. They listen, too. We've been listening to you for a long time."

"How? I never saw you before." Redlaw shrugged and smiled. "I've never seen a watcher," said Org Rider. "And you have never been on our mountain, I am certain."

"You're making a wrong assumption," Redlaw said. "I'm not a watcher. I work for them. As butcher in their galleys—" he gestured at the blood-stained apron he wore—"and sometimes as translator, when they want to know what people like you are saying. But I know you are truthful when you tell me you've never seen a watcher, because they don't look a bit like you or me."

"Then where are the watchers?"

"You'll see them soon enough." The man stirred the weapons on the rock with a foot and peered at Org Rider out of shrewd green eyes. "It's not you they care about, you

know," he said suddenly. "It's your dead friend here. What do you know about him?"

"Nothing," said Org Rider proudly, fighting back the pain and dizziness that were tearing at him. Dried blood on his arms and in his hair showed where he had been struck. No one had troubled to do anything about his injuries while he was unconscious. "He appeared from nowhere. I do not know how. I had never seen him before. This is true."

"Oh," said Redlaw, "I believe you. Whether the watchers will or not is something else. But you'll find out—one way or another—because here they come now."

A section out of the middle of the ship dropped flat to make a wide door and a ramp. Five creatures came flapping out and dropped to the rock around Redlaw, staring from a distance at Org Rider.

Though they waddled on two legs when they were not flying, they did not look human. They were squat and powerful-looking, like the man who had died so quickly and uselessly. Even more so—they were barely half the height of Org Rider or Redlaw. But the ways in which they differed from humans were extreme.

They wore slick bright armor that looked as though it grew on them. Their armored arms looked thick and muscular, and their wings were yellow-streaked leather—it looked frighteningly like

tanned human skin to Org Rider—and stretched from their arms to their stubby legs. Their faces were beaked. They had no necks. Wide black flexible ears spread out from each side of their beaks. Their multiple eyes were greenish bulges, protruding from each side of the head.

Their hands horrified Org Rider. The fingers resembled squirming pink food worms as they palped every seam of Org Rider's tented wings, every strap of his flying gear.

They emitted a foul odor that struck him in a suffocating wave. It took his breath and stung his eyes like death-weeds burning. Even Redlaw, who clearly had had opportunity to get used to these beings was wrinkling his nose and showing distaste.

The creatures squeaked to each other and then paused, big ears spread. One of them was holding the needled guide that had been Org Rider's mother's gift, the direction-showing trinket. Org Rider started to try to break free.

"Easy, boy," said Redlaw tightly. "You're very close to being dead right now. Don't push it."

THE watchers squeaked to each other, then once again went through the routine of palping his wings, his garments, his waterskin, his firepot, knife, coils of rope, empty pots. Then they moved like stumps rocking across the graveled rock to where the dead man lay.

They did not touch him, but they squeaked again, this time peremptorily.

Redlaw scowled uneasily and puckered his lips to whistle some sort of message. It was not very much like the squeaks of the watchers but it was as close as a human could come, Org Rider thought, and the watchers seemed to understand it. They replied.

Redlaw nodded and turned to Org Rider. "I've told them what you say. Two of them think you are lying. One thinks you are too stupid to lie. The other two have not yet made up their minds."

Org Rider was silent, letting that information soak through his brain.

"You see," said Redlaw, "this strange-looking fellow here is very disconcerting to them." He squinted thoughtfully at the racked body that lay staring sightlessly at nothing. "In a way they know that what you say is true. In another way they are not sure. Why did he come to you, boy? By accident? They'll never believe that."

"I know nothing more than I've told you," said Org Rider stubbornly. "If I die for it."

"You just might," observed Redlaw mildly, then started as a blast of whistling came from the watchers.

His tone was suddenly harsh. "They want to know why you don't carry the watchman's eye."

"I don't even know what it is."

"The talisman of their service."

Redlaw touched a sort of medallion he wore around his own neck. "Like this—to show you're their friend and servant."

"My people are not servants."

"Maybe that used to be true," acknowledged Redlaw. "Your people lived almost out of range. But times are changing. This friend of yours here—what's left of him—is making them change. I think you'll go away from here wearing an eye if you go away at all, Org Rider."

A burst of peremptory whistling and two of the watchers waddled toward the boy. The yellow coil around his neck tightened, strangling him, forcing him to his knees. The man warned, "Don't fight them—it's your life."

The bitter reek set him sneezing even while he gasped for breath. A leather wing slapped him into silence, knocked him down. A hot, hard-armored body fell on him and those pink, writhing fingers searched his body, prying into mouth and nostrils—every orifice and indentation. The weight, the pain, the indignity, the lack of air all combined to fill Org Rider with a helpless fury. He could not cope with it—he could only rage inside himself until at last the weight rose from him and the watchers took their foul reek away.

What might happen next was at that moment of no interest to Org Rider. He was preoccupied inside himself. He had never been so

treated. He had never been so helpless, not even when the girl he was interested in had whispered to him that she had pledged to marry his brother.

In pain and anger, Org Rider was conscious of one certainty. He would see the watchers paid for this.

AT LENGTH Redlaw's voice boomed: "You can stand up, boy. I've made a deal for you."

He whistled sharply and the yellow rope fell away from Org Rider's neck.

"You're going to wear the watchman's eye," Redlaw ordered. "It will show them everything you see. If you have any further contact with funny-looking fellows like your dead friend here, they want to know about it."

"What if I say no?"

Redlaw scowled. "I don't care." He tapped the square-bladed knife at his waist. "Maybe I didn't tell you that they have a taste for human flesh. To them you're an animal to be used one way or another. What you do is your gamble, not mine."

He paused, looking toward the ship. From the gaping hatch a sixth watcher flapped down. It was darker than the others as well as bigger, its stubby wings almost black. It flew directly to Org Rider and caught him in a reeking hug, claspingsomething around his neck. The contact lasted only a

moment—then the large watcher fell away.

The object was a heavy black globe, twice the size of the ball of Org Rider's thumb. A slick black cord of some sort of leather held it around his neck.

"Our captain asked me to tell you," said Redlaw, "that if you take it off he will do you the honor to eat you himself." He glanced over his shoulder. The captain of the watchers had already returned to the ship. The others were flapping slowly after him.

"Goodbye, Org Rider," said Redlaw.

He turned and entered the ship. The hatch closed. At once a small curved shell tipped down along the length of the ship. Something whined. A gust of warm wind sent Org Rider staggering across the gravel and onto the moss.

The ship rose and whined away through the sky. Org Rider watched it until he was sure it was not coming back.

Then he set about gathering his lost gear. None of it was lost or badly damaged, though it was scattered all over the rock and all of it stank of the death-weed reek of the watchers.

As soon as he had it he strapped on his harness, loaded himself with what he had to carry. His torn body was sending messages of pain from the crusted wounds in scalp and arms and his stomach fought against the clinging reek of the

watchers. He put them out of his mind. He did not even look again at the dead creature who had emerged from the bubble, or the glittering, broken toy that had brought him.

He launched himself into the air, turned and with great, painful strokes continued toward the distant peak of Knife-in-the-Sky. He did not look back.

IV

MORE than a hundred million miles away, far beyond the great broad curve of the horizon, the spinning wheel of the orbiter marched through its endless sweep.

Ben Pertin turned away from the monitor screen. The image on it was cracked and shattered. What showed clearly was a ghastly view of Ben's own dead, staring eye, peering emptily forever into the gaudily clouded sky of Cuckoo.

Ben looked guiltily at the silvery girl he called Venus. He did not think even an alien like her would fail to see the emotions reflected on his face and he was not proud of how he felt. To see oneself die was unsettling. The Ben Pertin who had just had his skull smashed and his body blasted on the distant surface of Cuckoo was as much himself as this other body he was inhabited here.

"I'm sorry, Venus," he said.

"Sorry?"

He said, "I guess the mission down there was a bust. Still, we've

learned something from it. First and most important—next time we send somebody down we'd better arm him for bear. No more waiting till he asks for weapons and trying to get them to him in a hurry."

"Concurred," said Venus. "Also editing appears necessary due to the gravity differential."

"Right. That light gravity is tricky. I—he was falling down all over the place. I've never been transmitted in an edited form before," he said. "I don't know how well I like the idea."

"It does not hurt, Ben Linc."

"Of course not."

The silvery girl curled one wing and moved closer to him, studying him carefully. "It is established," she said in her chiming voice, "that my people and Arcturan robots, for example, experience less ego-displacement in transmission than do you or, for example, the T'Worlie. Suggestion. One of us can go on the next transmission to the surface of Cuckoo."

"That's an idea. We'll keep it in mind," said Ben Linc. In his heart he knew he didn't want to do it that way. When the next transmission went, he would make it. There were two reasons, one practical, the other not. The practical reason was that Earthmen *looked* like the people who roamed this portion of the surface of Cuckoo. With editing—to stretch them out and reduce their musculature—they would look even more so. The first

efforts at communication had to be for the purpose of building up a store of language that the pmal translators needed in order to function. These had proved difficult enough. Asking one of these primitives to talk to a robot, to a T'Worlie or a creature like the silvery girl was out of the question.

The other reason was the important one. Ben Linc Pertin had thought it over carefully and, all in all, he had no particular reason to want to go on living.

Ben Pertin was not the first human being in the history of the race to reach that conclusion. Many, he felt, had forsaken their tomorrows for reasons far more trivial than his own. The thing that graveled Ben Pertin was that his options were curiously circumscribed. With tachyon transmission a man could die and die and die—and still not be done with either living or dying. However many times Ben Pertin let the tachyon scanners memorize his body structure and translate an exact duplicate to the surface of Cuckoo—and however many times that duplicate met a gory death—he would still be alive in orbit. And he would still be hurting.

Other men in his position could fling their lives away in a reckless gamble against death, and find oblivion. He could not. The only gamble he could take was in a fixed game that he could not lose. The situation made a mockery of

courage. Of selfhood.

"I said," the silvery girl repeated tonelessly, "the T'Worlie Nimmie is speaking to you."

"Oh, sorry." Ben Linc shook himself to attention and attempted a smile at the butterfly-winged being that hung in the air beside him. "Hi, Nimmie. What's new?"

"Theory," whistled the T'Worlie. "FARLINK proposes explication of tachyon interference."

"Really?" Ben Linc was diverted from his internal plan. "What's that?"

"FARLINK identifies source of interference as exogenous to Cuckoo. Originates elsewhere. Trace-scanning locates source as tight-beam signal generated in our own galaxy. Vector closely equivalent to that of human sun, called Sol."

Pertin frowned.

"I don't know about that," he muttered. "It doesn't seem reasonable. After all, there is only one tachyon station on Earth capable of this distance and that's locked in to Sun One. Certainly it couldn't interfere with reception here—"

"FARLINK adds," shrilled the T'Worlie, fluttering up and down on its bright butterfly wings, "interfering signal can be identified as mating call of female of human species, beamed from your home world, called Earth, to self, here."

"Ridiculous!" Ben Linc exploded. "Nimmie, that's insane! Why—"

He paused as a strong ammonia

scent made him sneeze. "Wait a minute," he said. "What does that smell mean?"

"Query. Smell, Ben Linc?"

"The gaseous emission that registers on my chemical-stimuli-detecting nerve sensors. I know you T'Worlie express emotions chemically."

"It is laughter," shrilled the T'Worlie triumphantly.

"Ah," said Ben Linc. "Then that was a joke."

"Confirmation," cried the T'Worlie. "Successful one? Query."

"Pretty good. Sorry. You caught me off guard or I would have laughed too."

A whiff of ether-like sweetness expressed the T'Worlie analogue of hurt. "Regret joke unsuccessful," Nimmie piped sadly. "Not all of communication falsified for purposes of humor. True that FARLINK locates source as near Earth in vector-distance not confirmed. Extreme attenuation of signal renders distance estimate un dependable."

"Strange," chimed the silvery girl. "Perhaps we should instruct FARLINK to assemble conjectural explanations of this phenomenon."

"You two go ahead," said Ben Linc. "I have to get some sleep."

"We will carry on while you are unconscious," whistled the T'Worlie. Neither he nor Venus slept and both were critical of human slumber. "Personal conjecture: whatever explanations, they will complicate our mission."

AND indeed they would, thought Ben Linc Pertin as he headed toward his living quarters, located at the high-gravity shell of the satellite. No random tachyonic transmissions should be coming in, especially from the galaxy itself, where all known 'tachyon sources had been long since identified, located and compensated for. It was one more irritation in a life that had become increasingly overweighted on the downbeat side.

What I need, Ben Linc thought, is a meal, a bath and bed. In that order.

But he would not find much pleasure in those either, he knew. The meal would be out of a dry pack and into a microwave oven—and would taste like it. With only three human beings on the wheel and a dozen other races with different diets also aboard, not much space was wasted on epicurean cookery. The bath would not feel much more satisfying. The wheel was in free-fall and the only way to bathe was through a sort of hose-down from jets inside a thing like a huge bottle. There was not a lot of pleasure in the experience—even after you learned how to get clean without inhaling several gallons of water. And the bed, of course, would be solitary.

Ben Pertin hurled himself out of the communications room in a savage mood. He was the first human being to reach this point in space, tens of thousands of light-

years outside the galactic spiral.

He was a conqueror by any standards the history books could measure.

What he felt like was a victim.

PERTIN's "bed" was a cocoon that could shelter, feed, protect and nurse him—as well as entertain and even educate him. It felt like a prison. Fed and bathed, he floated in it and could not sleep.

There was a sore place in his mind to which his consciousness always returned—like something caught in a tooth that the tongue cannot resist probing.

That something was himself. Another self: the Ben Pertin from whom he had been copied. That Ben Pertin was forty thousand light-years away, in the artificial satellite that hung in the Orion gas cloud and was called Sun One. To Ben Linc Pertin he seemed both farther than all those lights—in the sense of representing something unattainable—and closer than Ben Linc's own skin.

That other Ben Pertin—he was called Ben Charles—would be enjoying the domestic pleasures of marriage, as well as an interesting and productive career and all the amenities Sun One offered its citizens. Lucky man, thought Ben Linc, hating him.

Yet that man, too, was himself. Only a couple of months earlier they had been not only identical but coincident. That was before Ben

Linc had come here. He remembered perfectly well what had happened. He had risen that morning from the arms of his new bride, kissed her goodbye—but only as any suburban commuter kisses his wife *au revoir* for the day—and entered the tachyon transmission chamber on Sun One.

There the tachyon beams had scanned his body, built up a pattern of atoms and molecules and transmitted that pattern at the velocity of tachyons, the particles whose *lower* limiting velocity is the speed of light. And that pattern had been received here, had been reconstructed here, atom for atom and link for link.

So on Sun One, one Ben Pertin had walked out of the chamber, in no way different from what he had been when he had gone in. He had done whatever he had had to do during the balance of that working day and at the end of it had returned again to Zara, his/their wife.

But on the wheel, another Ben Pertin had floated out of the receiving chamber and felt the instant shock of knowing that he had lost the gamble. He was the one on the wheel, which he looked at with some curiosity but not much pleasure.

If you had put the two Ben Pertins side by side, no clue could have told you which was the original and which the copy. Both were originals. Neither was a

copy—except in some abstract, irrelevant sense that meant nothing when it was considered that each had a complete store of everything Ben Pertin had ever had, from DNA linkage to the last, most evanescent memory of infancy.

There was only one real difference: One was *there*, the other was *here*. One was living a normal life on Sun One. The other was doing a necessary job—without joy—on the orbiter, which he would never leave.

That was the paradox of tachyon transmission: since it was only a pattern that was transmitted, the object being transmitted remained unchanged. No matter how often you left, you always stayed behind.

Ben Linc Pertin tossed angrily against the restraining web of his cocoon. That was the damned unfair part of it, his mind cried. Why couldn't Zara join him?

It would cost her nothing. Like him, one of her would walk out of the tachyon chamber on Sun One, the other would be here. They would be together. He would no longer be alone.

He groaned resentfully, angrily, petulantly.

The worst part of his resentment was that in the end it was directed against himself. It was his own fault that Zara was not here now. It was he who had persuaded her not to come with him at first, not until the orbiter had been made more comfortable. She had wanted to

come. But she had listened to him, had finally agreed and promised to come later.

A lying, deceitful promise. She not only had not come, she wouldn't even answer his tachyon messages. Not for weeks. First he had suggested she might come—then asked outright—finally pleaded. No answer.

When Ben Linc Pertin finally fell asleep his dreams were harsh and punitive.

HE AWOKE in time for an all-hands review of the material gathered on Cuckoo.

In all, forty-one beings were living on the orbiter at that moment, counting collective entities as a single creature. They fit nicely into a cylindrical chamber not much more than fifteen feet across, partly because most of them were rather smaller than human beings, mostly because placement in free-fall was volumetric rather than planar. The sole T'Worlie acted as sort of general chairman for the meeting. Out of the bat's head perched on his butterfly-like body he squeaked a short sentence and all around the room the pml translators of the various beings rendered it into their own language.

"I will display the information gathered so far on Cuckoo."

In the center of the chamber a holographic display quickened into life. It showed a deep red sphere, floating in emptiness. There was no

hint of dimension, because there was nothing nearby to compare it with, but the voice accompaniment to the display began to give the values for its physical characteristics and all the pml translators faithfully relayed the information to their owners. Radius, slightly under one A.U. Mass, about equal to Sol. Density, very low—less than what in some Earthly laboratories was considered a hard vacuum. And yet the thing had a solid surface.

This was a familiar wonder to Ben Linc and the other beings, but they listened anyway. So much about Cuckoo was still unbelievable. Not only did it have a surface, but on that surface lived its creatures.

The sphere in the display grew and broke off into a section, which expanded, turned slowly to present itself to each of the creatures in the room. It grew larger and they were looking down on a landscape between two enormous mountains and there became visible the strangest phenomenon of all. The creatures living there seemed biologically similar to some races native to the galaxy.

Any connection was impossible.

Cuckoo had never been part of the galaxy. Its present course was aimed arrow-straight at the Orion arm. It had clearly been on that course for a long time—and it had originated in some other star cloud.

Ben Linc Pertin, listening and

watching, realized someone was touching him. He turned and saw a woman of the Purchased People. She rode the satellite as proxy for some water-breathing race from a star on the far side of the galaxy invisible to Earth and never named by it, Ben knew.

She said tonelessly, "While you were sleeping, Ben Linc Pertin, this came addressed to you with the last lot of supplies."

He nodded thanks—not to her; the imprisoned personality inside that skull neither expected thanks nor would know what to do with a courteous gesture—but to the distant mollusc-like creature that owned her and operated through her body.

He was about to turn back to the hologram when he realized what the woman had given him. It was a message cassette. There was no reason for anyone to send him a sealed cassette unless it was private—and there was only one person who would want to send him a private message.

That person was Zara.

SUDDENLY Ben Linc wanted nothing as much as he wanted the meeting to end so that he could put the cassette into his private holovision tank. But it wouldn't end and he could not leave—the topic had turned to one of his own specialties, the meteorology of Cuckoo. Long since the orbiter had dropped automatic weather stations

all along its trail and they had begun to show tentative patterns for the climatology and air-mass movements of the enormous sphere. It was only a beginning. In that immense ocean of air, the seeded stations sketched out only a line, but still Ben Linc had to summarize what was known.

As he finished, the FARLINK screens lit up with an overriding message.

ATTENTION. PROGRESS REPORT-ED ON TACHYONIC INTERFERENCE. FOLLOWING SAMPLE ANALYZED.

The computer blanked out, then displayed shaped waves glowing on the screens, followed by endless strings of binary numbers, while bird chirps sounded in the speakers. "Conjecture," whispered the T'Worlie beside Ben, a vinegary scent of excitement showing that its equivalent of adrenalin was flowing. "Analysis shows message."

But Nimmie's conjecture was wrong. The curved screens flashed again with the all-stations call of urgency, then lit up with the message in half a hundred scripts.

LINGUISTIC ANALYSIS OF THIS SAMPLE NEGATIVE. TECHNICAL STUDIES, HOWEVER, IDENTIFY SIGNAL AS COMMUNICATION OF TUNING DATA FOR TACHYONIC REPLICATION TRANSMISSION. PRESUMPTION: SOME MATTER IS TO BE REPLICATED FROM CUCKOO TO SOURCE.

"Ben Linc," chimed the silvery girl in sudden comprehension, "do you understand what that means?"

It means we can replicate our own matter at the source of this transmission. We can send a copy of one of us! We can find out where this signal comes from by sending someone there who can report back in a language we can understand."

"If he lives long enough," grunted Pertin. He understood the importance of what was being said, but in his personal scale of values nothing was quite as important as the cassette he had been clutching, all this long while, in his hand.

And at last he was able to excuse himself, hurl himself through the passages of the orbiter to his private cocoon, squirm in, seal, and then slip the cassette into the vision stage.

ASILVERY glitter of cloud sprang up before him and condensed into the face and form of Zara, his wife, looking meltingly beautiful and overpoweringly sad.

She gazed at him silently for a moment, as though unsure of what to say. And then—

"Dear Ben," she said, "I don't know how to tell you this. I'm sorry to answer you this way. The truth is, I just can't face you."

She paused, biting her lip.

"You see," she said, "I'm not going to come to join you. I know how disappointed you will feel—disappointed in me, because I promised. But I can't.

"I'm pregnant, dear," she said. She hesitated and added: "You

know that Ben and I—I mean, *you* and I wanted to have a child. We were given permission before—before you left. Well, now we're going to—in about five months.

"So you see I can't come now. It would be one thing for you and me to live on the orbiter and to know that we'll die there. Being together would make all that worthwhile. But not our baby, Ben! I just can't do that.

"Of course, after the baby is born . . .

"If you still want me we'll talk about it then. I promise you, Ben, dear, I want to be with you. All of me wants to be with all of you. There must be a way, but for now I can't see what it is." She hesitated, then said in a rush, "I'm going to stop now, Ben, because I'm going to have to cry. I do love you! Oh, God—"

And the image faded and was gone, leaving Ben Linc Pertin more alone than he had ever been.

V

ORG RIDER washed his torn garments in a rain pool and spread them on a rock to dry, but the death-weed stench of the watchers was still in his nostrils. He was out of the storm area now. The rock where the stranger had been killed and the watchers had treated him with such contempt was far out of sight in the rain clouds. He was cold and his aches and pains were

enormous, but he was alive and free. It was more than he had expected moments earlier.

He fished bare-handed in the pool for horny brown scuttling creatures and kindled a small fire to broil them. They were much like pond-dwellers he knew from his own mountain and when they were cooked they tasted as good. He was overpoweringly weary, but he forced himself to catch more of the scuttlers and prop them over the fire to take with him.

Then he wrapped himself in his wings and was immediately asleep.

When he awoke the first thing he felt was the black weight of the watchman's eye against his throat.

His fingers closed around it and he came close to ripping it off and throwing it in the pool. But it could not harm him while he was wearing it, he thought, and he had not forgotten the warning about what would happen to him if he took it off.

Warm and dry, he filled his waterskin, caught and broiled one more meal of scuttlers, then strapped on his gear and dove out from the hillside to catch the wind.

He was more cautious than ever now, turning suddenly to search the sky behind him to see what might be following. Nothing was, neither small watcher nor ship carrying the repellent creatures who had marked him with the thing around his neck. He was not so far from the rocky, desolate upper reaches of Knife-in-

the-Sky that sighting orgs would be too unlikely. But he saw nothing like an org . . .

Until it was almost too late.

The far thin scream drew his eyes aloft. The org was a pale brown fleck dropping out of that high gray haze, sliding down across the long blade of the summit.

It grew as it came toward him, taking shape and color. A slim, winged fish-form of bronze and silver: the body bronze, tapering to a narrow waist behind the stubby wings; the tail and wing-tips shining silver. It was beautiful and terrible.

And it was coming toward him.

Org Rider came out of an instant's trance to full realization of his danger. This was not a dream. He faced a creature that could kill him with a single careless rake of claw or tooth. And he was exposed in the open air, where its speed and skill were far greater than his own.

He dived, flapping desperately, staring over his shoulder. The org drew so close that he could see the shape of the individual lapped triangular scales, bronze and silver. Its powerful legs unfolded, stretching cruel black talons toward him. Org Rider closed his wings and arrowed toward a black crevice below, where two great boulders had tumbled together. Even in that moment the beauty of the org choked his throat. To tame and control that power was worth the risk of his life.

But it seemed his life was already forfeit—his fall was slower than the org's dive. His weapons were useless, the bow hanging to his harness, the spear impotent during his fall. Even the knife would only annoy the org—it could not hope to prevail against that wide red mouth spiked with shining teeth.

On impulse, without thought, he snatched the cold hard sphere of the watchman's eye from his throat. He did not even feel the bite of the thong as it broke. He flung it into the org's great mouth.

Confused, the creature broke away, lost momentum, soared past and away. It went by with a roar of wind and a strange falling note in its scream. It recovered almost at once, wheeled and returned . . .

But by then Org Rider was deep in the crevice between the boulders.

FOR many hundreds of breaths the org stayed near the crevice, sounding its anger and frustration, scrabbling at the rock with its claws. Its intelligence was too high to let it come in after him—in the cramped quarters, his spear was a more deadly weapon than its claws. Yet it did not leave.

Its nest had to be nearby. Org Rider knew that nothing else would keep the creature there so long. There was prey in plenty easier to find. Mere hunger did not account for its tenacity.

The thought was like a sniff of

dream fungus, intoxicating, dizzying, a little frightening. Where there was a nest there were eggs. Where there were eggs there was one to steal.

Methodically Org Rider unstrapped his wings and lightened his pack. He did not dare to fly so close to the org's nest. He would have to move fast and carry nothing that he did not urgently need. His only way to reach the nest was to thread the maze of spaces between the boulders, where the org might not see him or would hesitate to attack. He wondered briefly what had become of the watchman's eye. Had the org swallowed it? Was it broken, so that the watchers might come angry and avenging at any time? He could not tell.

Leaving everything behind except for knife, compass and a coil of rope, he breathed heavily to charge his muscles, rocked to test his footing, crouched and jumped. He was in the open for only a moment, in a long surge from shelter to shelter. The org was out of sight. He could hear its baffled screaming, but did not see it. Possibly it had not seen him.

The journey to the top of the boulder pile was long and hard. Beyond it rose a naked cliff a dozen times his height.

Org Rider could leap that height—any of his people could. Yet it would test his strength and he would be exposed while leaping, off balance and vulnerable when he

landed. He peered out, saw no org, and leaped without allowing himself time to be afraid.

He soared upward, caught the slippery rock at the rim of the cliff and pulled himself up onto it.

Before him lay a level mile of flat black rock. In the middle of it rose a rough pink cone.

The org's nest.

Although it was in view, no more than a half a dozen long leaps away, it was not yet in reach. A great org hovered over it, scales gleaming in the blue light of the peak. It had not seen Org Rider, but if he approached the nest discovery would be a matter of moments.

He needed time to think. He spotted a narrow crevice and scuttled to it, hugging the flat rock.

Concealed and secure he drowsed and thought for a long time, but in the end the solution to the problem seemed as far away as when he began. He could stay where he was, hoping that the guardian org would wander away, but the hope was foolish. A far more likely eventuality was that the other org would give up its fruitless sentry duty at the crevice between the boulders far below and come up to join its mate. With two adult orgs nearby Org Rider's problem would no longer be the stealing of an egg, but survival. Sooner or later the beasts would find him.

But as he crouched and drowsed his problem was being solved for

him. He did not know it at first. He heard raucous shrieks and realized suddenly that both orgs were now crying out their rage and resentment. He next became aware of a dull, distant *slam, slam, slam* that was unlike any sound he had ever heard.

Cautiously Org Rider poked his head out of the crevice and was just in time to see a brilliant flare of golden light.

Dazzled and partly blinded, he knew at once that again one of the small watchers was nearby. Squinting to see what was happening, he saw a naked machine in the air, quartering away from him and emitting the slamming sounds and puffs of smoke. It was curiously ugly, like a stick-figure of an org or a person—it had wings, but they did not move, were rigidly extended. The two orgs were attacking it, screaming in fierce rage, and pieces were falling from it, broken bits that scattered down across the face of the mountain. One seemed to have the shape of a man, and it was from it that the yellow flare had come. But if it were a man he had forgotten his wings and did not know how to hand-soar to guide his landing. He tumbled end over end, disappearing from sight. The machine itself slammed crazily on.

Org Rider knew he would never have a better chance.

He did not stop to think. He was out of the crevice and leaping for the pink cone in less than a breath.

Now was when he needed wings, but he did not have them. He could only leap, guide himself with his hands, come down with his legs already under him and leap again. He could hear the distant *slam-slam* of the machine and the screams of the orgs, but he dared not leap high enough to see what they were doing, lest the orgs see what *he* was doing. But the sounds were still distant—and he was already tumbling over the rim of the nest.

Built of stones plastered with org manure, it had a good, clean, dry odor, a little like the smell of parching grain. The shallow pink cup held a single egg.

Even in his mad haste Org Rider took time to look at it—and to feel his heart catch at the sight. Smooth, mottled bronze and blue, the egg seemed too large for him to clasp securely. But its surface felt warm and elastic, yielding slightly when he touched it—it had a friendly feel.

The yells of the distant parents were not friendly. Hastily Org Rider wound and knotted his rope to make a sling for the egg. Its weight was almost nothing, not much greater than his own. He slung it over his shoulder, scrambled to the rim of the nest and leaped away.

The breeze had freshened. It was at his back and it made each leap half again as long as the one before. At the second leap he craned his

neck around. He saw neither orgs nor the queer slamming machine. He could hear the distant angry baying, but it seemed less furious now. That was not good—it meant the adult orgs were calming down, presumably having destroyed the machine. It would not be long before their fierce parental pugnacity drove them back to guarding the nest—and when they found it empty their rage would become incandescent.

Org Rider's life depended wholly on making sure that they would not find him. He came to the edge of the tableland and leaped straight out, not even looking back.

It took all his skill to guide his descent into the best hiding place he could see. The bulk of the egg was a sail that unbalanced and tumbled him—the one free hand he had for steering was not enough to make up for it. He hit hard when he hit. At the last moment he threw himself around to cushion the egg with his own body.

He was—for the moment at least—safe.

And the egg was his.

HE HAD landed in a vale of boulders, half buried in banks of gray mossy stuff. A mountain stream purled and cascaded languidly down the slope. Org Rider had chosen the spot for that reason. As soon as he could regain the breath that had been smashed out of him he scratched and leaped his

way to where a wide bright ribbon of water rushed from a sill of rock.

What he had hoped for was there—a dry place behind the waterfall. It would do. The water's sound would drown out any noise he made. The spray would carry his scent away. The curtain of lazily falling water would screen Org Rider and the egg from the vision of the parent orgs . . .

With a start Org Rider realized he was already thinking of the egg as though it were a grown and mature Org—and his. He let himself grin with wolfish joy. The hardest part was done—his dream would yet come true.

But now he had work to do. Cautiously he ventured out and, one eye on the sky and both ears alert, tore armloads of moss out of the hidden sides of the boulders and carried them back to make a nest for his egg. When at last it lay safe he took time to rock back on his haunches and inspect it.

It was there, real and true and truly his. He studied every inch of its blue, bronze-speckled surface. It had no crack or flaw. It had not been harmed by the abduction and, best of all, from its warmth and certain mysterious movements inside it, it showed every indication of being very close to hatching.

His heart filled to bursting with joy and pride, Org Rider sat back and rested for a long moment, planning what next to do.

As well as he could tell, he had

come down near the spot where the cartwheeling figure from the slamming machine had fallen, but a long, long way from where he had left his weapons and supplies. He was in a sort of great natural chimney, with steep rock on all sides. He drank his fill of water from the falls and it was cold and sweet. He found nuts growing nearby and they stilled his hunger.

His first step would be to try to get to his cache.

He crept to the edge of the falls and looked up.

As soon as he was away from the gabble of the falling water he heard the distant, agonized screams of the orgs. They had learned of their loss. The long moaning bellows sounded of rage and the promise of revenge.

Org Rider saw a cluster of beeches nearby. The creatures who hived in them were dreadful enemies when aroused and it was known that they had some chemical loathing of orgs. They would, perhaps, make the adult orgs approach only reluctantly. But what if they should smell out the egg?

He could not guard against every contingency, Org Rider decided with a pang of worry and regret. Reluctantly he started out to hunt for a way to his cache and a good escape route from the giant chimney.

At one point in his search the adult orgs came wheeling and shrieking overhead and he had to

bury himself hastily in the undergrowth beneath a stand of fire-trees. Red insects shared his hiding place and their crawling over his flesh was maddening, but he dared not leave. He lay motionless, half drowsing, for a long, long time, not even lifting his head to see what was happening when the screams of the orgs were so close that it seemed certain they had spied him. They had not—of this he was sure only when he found himself still alive moments later. When the cries became distant he dozed again and dreamed a frightful dream in which his cherished egg hatched and turned into a black-winged watcher that stank of death-weed.

He awoke trembling and found the orgs were gone. The skies were silent.

He had not located his cache or a way out, but he found food of a sort, succulent stalks from a purple bush that tasted sweet and meaty, some torpid red watersnakes that were dull enough to allow themselves to be caught. He returned to his waterfall feeling cheered and expectant, looking forward to seeing his egg, touching it, listening for its heartbeat and observing the stirrings inside it.

With a wary eye for danger he ducked under the lazy waterfall—and shouted with astonishment and anger.

The egg was there, luminously blue in the half-light under the falls. But a creature crouching over

it—a squat man-shape, black-haired and nearly naked—was smashing at the egg with a red-smeared rock. The man looked up in fear and astonishment at Org Rider's yell.

And then, for the first time in his life, Org Rider felt superstitious fear. The man was the stranger from the small watcher, whom Org Rider had last seen dead.

VI

SOME tens of thousands of light-years away from Cuckoo, on the inner curve of one of the spiral arms of the galaxy toward which Cuckoo was hurtling, was a GO-type star of no great intrinsic interest, which had in orbit around it the planet Earth.

Earth and its dominant race of humans were new among the galactic races. They were fully accepted as equal members. The streets of cities like Chicago and Peking were already accustomed to the sight of darting Sheliaks, glittering Arcturan robots and a hundred other races. Every major city had its own tachyon transmission center, through which flowed the traffic of the galaxy. All the centers were alike in that they were huge, new, towering over the structures around them and filled with the enormous mass of hardware that met the power requirements of tachyon transmission. Each wore proudly the gauzy spiral that was

the emblem of the galaxy.

Across the tiled floor of the great concourse of the tachyon center in old Boston a young woman named Zara Gentry walked with grace and assurance. She had been here before. She had been almost everywhere, for Zara Gentry was a famous holovision personality, known everywhere for her on-the-spot reportage of the Earth's doings to the Earth's people. She had been everywhere and tried almost everything. She had, in fact, been a volunteer for tachyon transport several years before. One copy of her lived on Sun One. Another worked and lived in an orbiting station around the planet inhabited by the collective swarming creatures called Boaty-Bits, in the constellation of Bootes. Those two she knew of, for they were direct copies sent from Earth. But the tachyon duplicates could themselves have been duplicated—and there could be a hundred Zaras in the galaxy. Or a thousand.

It was strange, Zara reflected, how little she knew about those other selves. They were so much herself and yet so different—so close to her and so impossibly far away.

The whole process of tachyon transport was loaded with trauma. She well remembered the quirky fears that had beset her when she had first volunteered to be scanned, mapped, blueprinted and recreated thousands of light-years away. The

experience had been unbelievably scary. She had signed up and called to cancel her signature—had signed again and withdrawn again. At the end only her conscience had made her go through with it, because by then there had been such an investment of time and training that she could not let it be wasted.

So she had walked into the tachyon transmission chamber—

And, moments later, had walked out again. And it seemed that nothing had happened at all.

She had known with one part of her mind that every atom in her body had been identified and placed in its exact coordinates and that the blueprint that carried her minutest specifications had been even then racing, tachyon-borne, through the galaxy toward the semi-artificial world in the Orion nebula called Sun One.

The other part of her mind had been wholly occupied with wondering where her date would take her that night for dinner—and that dichotomy had been as frightening as the process itself.

It was still frightening and unsettling for her to think that somewhere someone who was exactly, identically herself was doing things she did not know about; might be terrified or joyous, angry or ill—might even be dead. It was frightening and unsettling, but one could not go on being frightened and unsettled forever. The first two Zaras had exchanged

tachyon communications for weeks and months and then, less frequently, for a year or so. They had even spoken "face to face"—in tachyon-borne holovision communication. When she had sent the second copy of herself to the Bootian planet she had tried to keep in touch with her, too, but again communications had trailed off.

And now Zara Gentry was about to expose herself to the trauma for the third time.

She grinned to herself, dodging a Purchased Person who carried a hive of Boaty-Bits as she made her way to the elevators. *I never learn*, she thought good-humoredly.

But this new prospect was exciting, she had to admit. This copy of herself was going clear out of the galaxy, to the strange object identified as Lambda One and more familiarly called Cuckoo. With less fear than anticipation Zara Gentry rose to the hundred and eighteenth floor and reported in for her check-up interview.

THE man in charge of her transport was old, tanned, lean, good-looking. He had bushy white eyebrows and a great sweep of white hair broke like high surf over his forehead. He maintained dignified objectivity in what he said, but he and Zara had become friends during the past weeks.

"Zara, it's nice to see you again. Well, tomorrow you make the great

leap forward. How do you feel about it?"

On her holovision program Zara would have answered, *That's a dumb question. Look at the psych test profile in my folder. You know how I feel better than I do.* But here she said, "Well, a little scared. Otherwise fine." And she smiled.

"That's natural enough," he agreed absently, leafing through her folder. Suddenly something in it seemed to attract his interest—he stared at it thoughtfully for a long time. Then he raised his head and asked, "Have you seen the legal officer?"

"Not yet."

"Oh, but that's very important." He was upset. "Please don't put it off any longer, Zara. The documents must be signed. You know that the copy of you will be, to all legal intents and purposes, yourself. She has an equal right to all your property and is equally obligated with you on the fulfillment of contracts, unless you state clearly in advance which of you shall have which property and responsibilities. You must file your statement of settlement at once."

"I will," she promised. "I have done this before, you know."

"Yes, of course, but each time you create a copy you create the same problem." Then he relented, smiling. "To be sure," he said, "when you come right down to it, the problem is more legal than real. There isn't much chance you'll ever

see your copy, is there? And a half-interest in a condominium in Buzzard's Bay isn't going to mean much to the copy of you that's on Cuckoo. But there is always the chance some question could arise, so you have to file the statement. Otherwise they won't accept you for transmission."

"Don't make that too tempting," said Zara, not wholly joking.

"Mmm," he said thoughtfully and made a check mark on her personality profile card.

"I really do want to go," she said quickly. "Or at least, I'm going."

He nodded. Hers was not an unfamiliar reaction. If the tachyon boards rejected applicants who were doubtful they would never send anyone at all. "I see you've been issued all the cassettes."

"And I've listened to them," she said.

"So you're about as well briefed on Cuckoo as you can get, I imagine. Do you have any questions?"

She said, "Well, those briefings are more distinguished for the questions they raise than the answers they give, aren't they? I mean, nobody seems to know exactly why the object is as funny as it is. The size is all wrong for the mass—and nobody seems to understand how come there are creatures so much like humans and Sheliaks and Boaty-Bits on it."

He grinned. "If we knew the answer to questions like that we

wouldn't have to send out people like you. Our lack of answers is why you're going." He hesitated, looking thoughtfully at her papers. "Although there seems to be some more specific reason for your transmission. Do you happen to know why you were requested by name?"

"No," she said. "And I've wondered. The request came from Sun One, I understand. I have a copy here. I suppose she could be behind all this. But we haven't been in touch lately, so I don't know anything more."

"We could send her a message if you like. You could ask her yourself."

"Oh," said Zara, "actually I'm rather intrigued by the mystery. I'm not fearful about it. That other Zara can't have changed all that much in a couple of years. If she thinks it's a good idea for me to go to Cuckoo—then it probably is. I mean, after all, she is me." She hesitated, then added: "The only thing that does puzzle me is why she doesn't send a copy of herself."

The man said with visible pleasure, "You don't know how glad I am that you asked that. I can answer it. It puzzled me, too, so I got her records. The other Zara, you'll be pleased to know, married a man named Ben Pertin. He's a copy, too, of course—his identification is Ben Charles Pertin. And she expects to bear their first child in a couple of months. My impression is that she was anxious enough to go,

but not with an unborn baby."

"Ah!" said Zara, vastly relieved. "I'm glad for her. What a nice thing to hear about yourself!"

"And you yourself, Mrs. Gentry? I see you're married. Are you planning a family?"

"Why, very likely," she said. "But I'm not pregnant now."

He nodded and closed her folder. "I think that takes care of all the loose ends," he said. "See the legal officer. Get a few more shots. Then you'll be all ready to go."

"I'm ready now," said Zara Gentry.

WHEN she was through with the legal officer—an episode that left her feeling she had signed a part of herself into slavery—she took the express elevator that dropped her into the physical training rooms below ground. The *splat* of firearms told her the weapons class was in session. She tarried at the door, looking in at the range. The cassettes had been quite candid about the possibility of physical danger on Cuckoo. Several transportees had already experienced close calls and two were dead. Besides the known predators—winged creatures like flying seals, armed savages, creatures like Sheliaks gone mad and others—there were countless trillions of square miles of surface that had been only sketchily photomapped from orbit. What dangers they held no one could tell.

The other thing that troubled Zara in the conscious part of her mind was that the Zara who went to Cuckoo would not be quite the Zara Gentry who filled the holovision receivers on Earth. Cuckoo's surface gravity was so preposterously slight that the first transportees had nearly destroyed themselves leaping about like jumping beans. Zara's physical attributes would therefore be slightly modified. They had promised that her appearance would not be changed, but she would be a little weaker, a little slower in reaction time. Even so, they said, she would have to watch herself; but it was thought that a little extra strength and speed might be helpful against the known and unknown dangers of Cuckoo.

The class was ending. One of the men caught sight of her, grinned, waved, checked his gun with the instructor and came toward her. "Three bull's-eyes and twelve in the first circle," he said proudly, running a hand through his tousled mop of red hair. He was no taller than Zara and barely weighed more than she did, but the compact muscles were like steel. He would need a great deal of editing, she thought, leaning forward to be kissed. "I'm all set, dear," she said. "We're due for shots in half an hour, and that's the last."

"Great," her husband said, putting an arm around her. "Cuckoo, here come the Gentrys!"

TO BE CONTINUED ★

Frederick Pohl, of course, needs no introduction to *Galaxy* readers. They know him as an author and as an editor who long gave *Galaxy* and *If* some of their finest moments—becoming in the process the only master of these arts ever to win Hugo Awards *both* as an author and an editor. He has won four. Jack Williamson, his collaborator on *The Org's Egg*, which begins in this issue, is probably as well known—the two have worked together on six novels before this.

Here's Frederick:

"In writing *The Org's Egg* and the Cuckoo series in general, Jack Williamson and I owe quite a lot to three other people, two living American scientists and an ancient Greek. I'd like to acknowledge that debt. The scientists, of course, are Jerry Feinberg of Columbia, whose notion of the "tachyon"—the particle that obeys Einstein's concept of "c" as a limiting velocity by never going *slower* than the speed of light—makes the whole thing possible, and Freeman Dyson, of Princeton's Institute for Advanced Studies, who proposed the central notion of Cuckoo, the Dyson sphere.

"The series began in the fall of 1970, when Jack and I were both attending a conference of the Science Fiction Research Association. Since Jack and I had already written six books together and thought it was time we did some more, and over coffee in the faculty lounge of a college where the conference was being held we matched up ideas and plans, and this series emerged. It was not just a matter of an adventure story

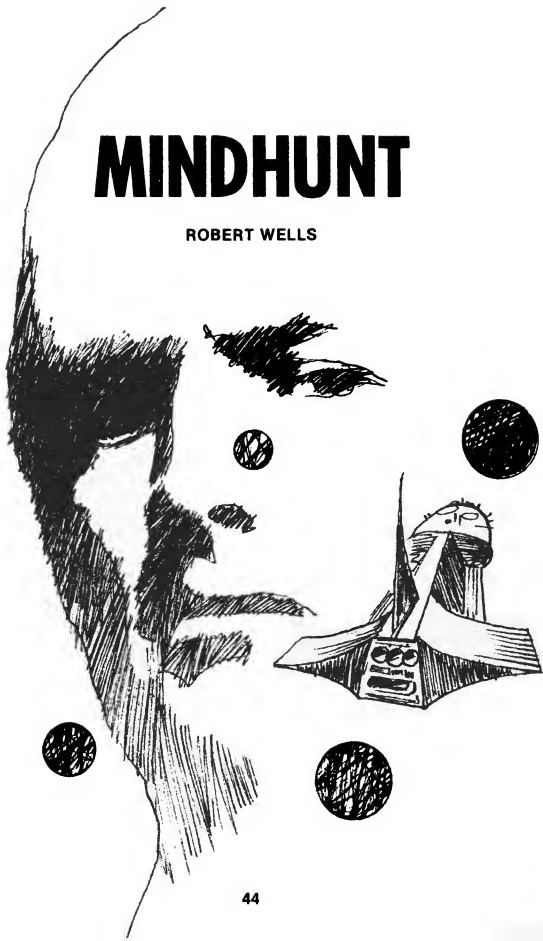
with the technological trimmings of the Feinberg and Dyson proposals; we were trying to do something that, it seemed to us, science fiction alone of all kinds of writing *can* do: to show what the human condition might be under circumstances never before experienced. Human nature *does* change. There *are* things that are new under the sun—or in, around and apart from the billions of billions of suns that make up our universe. In *The Org's Egg* Ben Pertin lives under different kinds of stresses and feels different kinds of pain from those we have all experienced, because his environment, particularly that part of it which has to do with replicating himself, imposes different challenges. We don't think that the future means an end to human suffering—but as H. G. Wells once said, we can hope to suffer like human beings, instead of like animals. It is easy, and tempting, in writing science fiction to assume that nothing really changes, and that the man of a hundred or a thousand years from now will hurt from the same wounds we feel in 1974—but if we write that way, we retreat from the real potential of science fiction, which can tell us what *different* wounds may be like, long before we or our children have to feel them in reality.

"The Greek? Oh, yes—that was Aristophanes, of course, whose play *The Birds* first mentioned the place he called Nephelococcygia, translated as "Cloud-Cuckoo Land".

"*The Birds* isn't a new work (it was first performed around 414 B.C.), but we think it's still relevant!" ★

MINDHUNT

ROBERT WELLS



***Two men whose minds had
won the stars—and lost
all that humans lived by!***



I

NIGHT after night the horrified
face of Grigor Cernik animates
my dreams.

Nothing the psychomanipulators

can do for me deters Cernik. They have implanted smoky girls naked to the ears rolling in Tahitian surf, musical patterns, pastoral scenes from my boyhood. Nothing stops Cernik. When they fade—he is there.

The Skyblue Colonel went away sadly. She may not come back. But Cernik will come again.

He is there. As far as the word "haunted" has any meaning in these last years of the third millennium, I am haunted.

I know how. On other matters such as "why?" I am not prepared to speculate. Feed that to your computer and squeeze some logic out of it.

Naturally, the concept of haunting would make the psychomanips smile in a sad, superior way. Their version would be quote persistent hyperconscious hallucination unquote. My version of their possible version is gobbledegook, eedeepee speak—in short, crap.

For one thing, I haven't told them who is the intruder in my dreams. It wouldn't do for them to catch a hint that I haven't yet finished with Cernik. I won't let him go that easily. He still has a lot of dying to do. I still have a lot of living to live. The whole thing is relative. Matter and antimatter, writing in a mirror, the other side of the sky. Cernik. I.

Who am I? You may well ask. After the first two hundred words of ravings we have a right to know

who is this I who reveals himself only in terms of someone else.

Who am I? Sometimes I ask myself the identical question.

My name is Alan Durain. I am a hundred and ninety pounds hung on six feet two inches of skeleton. Hair brown, nose crooked. On the helmet of bone that keeps my brain from boiling over, I have cranial bumps which, some charlatan once told me, indicate exceptional powers. I talk a lot and often if I find a willing audience. But right now my virtual and only audience consists of the psychomanips. Hence these sketchy, hasty babblings, rolled cylindrical and pushed into the cold-water faucet. Up, as they say, their pipe.

Do you feel you know me better now? Let's get back to Cernik.

I did not know him for eighteen years. I was happy. I was cross-bred and carefully pedigreed into science. The DNA artisans got their calculations right. Coy phrases like "potential brilliance" and "immense perception" crept into my school reports. Grades were something to be on top of.

At seventeen I did my first intensive pre-university studies. At eighteen I found myself on the soggy campus of a famous East Coast university, one of an elite class of twenty all set to roll forward into distinguished scientific careers.

Only one thing was missing. The gene jugglers had left me short of stamina for the natural selection

stakes. I had all the urges but very little ability. You can't have everything. The guardians told me this when I complained. I was bitter. There was nothing they could do about it. Let's get back to you know who.

He, too, was one of the elite that wet summer at Norfolk. Someone must have introduced us, but he didn't make an impression the first time. The first encounter for real was startling the way that many things about Cernik often turned out. That first encounter was loud and ill-tempered.

At a very late hour on my second night on the campus I was washed out of bed on a tide of sound. I didn't know it then, but the wave fetched all the way from the middle of the andante from Kalipaj's *Symphony No. 3*. Kalipaj, an almost forgotten middle-European composer, was the darling of the avant garde that decade. Cernik was avant garde. He had orchestrated Kalipaj for electrorobot complex and paranoiac. Cernik was the paranoiac.

When I picked myself up off the floor my unwashed coffee cup and saucer were still trembling. No doubt it was an illusion, but the walls of my efficiency seemed to be expanding and contracting. Kalipaj, loud, brassy and percussive filled it like a sea.

I hammered on the wall, but Kalipaj swamped my puny indignation. I scrambled into a pair of

slacks and rushed into the corridor. I beat on my neighbor's door, rattled the knob. It wouldn't turn.

A door behind me opened and a girl with shoulder-length flax-color hair looked out. Her face, too, was twisted with pain. Her lips formed words I couldn't hear, but understood: "What the hell is it?"

I shrugged helplessly. I turned back to the door behind which Kalipaj raved. I hammered on it. It stayed locked. The music (music?) sucked my blows disdainfully into its whirlpool.

"For crissake stop that goddam racket!" I bawled. A clutch of electronic trumpets blasted me backward like a broadside from one of those old battleships.

The girl came right out of her room. She didn't have much on except a man's long sweatshirt she obviously used as a nightgown. She put her hands up over her ears which pulled its hem inflamingly hipward.

The pain of Kalipaj and the pain of trying to see too many things at once must have frenzied me. I sprang at the door. It shuddered, but held. I stood back and kicked the lock. The locks on those student pad doors were always cheap and ailing. It broke. And there he was.

CERNIK. He crouched on the floor like some strange projection of a mediaeval sorcerer into the present.

He was slight with a disproportionately large, wedge-shaped head, the chin its sharpest point. He chose to wear monstrous exo-spectacles instead of contacts. They magnified speckled gray eyes. An ugly scar ran vertically from jawbone to collar on the left side. It looked like someone had been goaded into taking revenge, but it was just the place where some of his over-zealous glands had been mined when he was a kid.

He commanded the center of an electronic nightmare that had taken over the room. Three tape decks, a control panel bristling with stops and knobs; festoons of wire linked it to amplifiers, distorters and other cunning musical boobytraps I didn't recognize.

If he hadn't been facing the door I'm sure he wouldn't have known I had burst in. He looked out of the raging sea of Kalipaj in a dazed way. He pushed the spectacles up onto the bridge of his nose and grinned. It was an elfin grin. He looked like a troll. The other hand moved lazily toward a knob on the control panel.

The flaxen-haired girl had followed me into the room. She knew something about the electronic music complex because she darted past me and got to the knob before Cernik.

Kalipaj shrank abruptly to a rumble in the guts of the machine. It was so sudden that my own voice bawling, "... goddam bloody im-

becile . . ." sounded loud enough to reach across the water to Newport News.

Cernik twitched his spectacles again. "Welcome music lovers!" he said in his mocking, elf's voice. "Join the party."

Not surprisingly we didn't. In the new silence we told him jointly and severally what we thought of him, Kalipaj, robot orchestras, his parentage, avant garde music, his academic prospects and, more philosophically, the duties members of a society owe to one another.

As usual, I started out being angry and ended being spiteful. The girl was better. She was scornful and eloquent and knew how to sneak in a pithy anglo-saxon word where it sounded most telling. She had a very neat compact behind that kept revealing itself pinkly and whitely when she waved her arms inside the sweatshirt nightgown.

Cernik didn't say much and none of it was an apology. He was unruffled, serene. Later I came to know that his outrages were not malicious or selfish. They were all designed by him exclusively to provoke a reaction. He never stopped working at being the still center in macrocosmic confusion.

The bridge between the first eighteen happy years of my life and the age of Cernik was only ten minutes long measured from bed to bed. Mine was still warm when I got back to it. Kalipaj didn't return. I heard Cernik moving around

for a long time as I lay fuming and fretting. But the Pandora music stayed locked in its boxes. I finally got to sleep thinking about the girl and her sweatshirt. I wondered if her bed was warm and restless too. Three nights later I was in it, starting and ending one of the briefest love affairs on record.

"I told you it wouldn't work." I said bitterly.

"I thought you meant it like the others," she said. "Ergo, let's bed together. Without commitment until the next time. But you meant it. You really did."

"Yes." I turned from her. She held my hand. She was a warm, sympathetic lovely girl. I slept in her hand dreaming of the Strickes zones of the brain where my future lay.

The girl's name was Delicias. Sometimes I wonder at parents. Sometimes I think they have a cruel streak. Her surname was Disch. So—Delicias Disch! She seemed to get a kick out of it then. She was a delicious dish at that. But I thought it was a cynical bit of name-giving. Maybe she'd acquired her warm, loving nature learning to live with it.

Before I woke, Cernik came into my head. I had a queer feeling like I'd been drinking and was tight. Cernik seemed to be studying the pin-prick electronic messages speeding along in my brain. *That's interesting*, he thought. His lips didn't move. *Dedicated celibate...*

Flake off Cernik. I told him. He had no business gatecrashing.

I woke up angrily. Delicias nestled against me. She murmured into my ear and we tried it again. It didn't work. I could hear Cernik laughing like a maniac somewhere. I think it was in my head.

"Okay," said Delicias. "Okay, forget it." Then: "You might have told me." It was the only time I recall hearing her reproach anyone.

THE study course was intensive. We were an elite class, each member destined to be a specialist in his field. The competition was uncompromising, but I still needed to have the best grades.

Friendships were formed among the other nineteen, but I never knew any of my classmates well except Delicias Disch and Cernik.

Cernik quickly developed a reputation as a brilliant analyst and a mischievous crank. Everyone respected him as a scientist and loathed him as a classmate. He had a cool that could not be unfrozen and a hide like an elephant, one scorn or ridicule could not penetrate. Except once.

The story goes that Cernik bedded with Delicias for a short time that first fall. No one else would have borne him. But Delicias was sympathetic and warm and loving and she needed love like she needed to breathe and she believed in experiment because she was a scientist.

There was a story about the end of that affair that made the rounds, but I won't bother to repeat it here. At any rate, Cernik dropped Delicias shortly and after that she had a long and fulfilled affair with a six-foot-three senior from the engineering class, called Sompting.

Almost from the night of Kalipaj Cernik decided he was my friend. My fury then at the selfish misuse of the robot music and my open hostility when I heard the story about him and Delicias Disch made no difference. He persisted in sitting with me at lectures. He provided gratuitous advice on how to present my work to please individual tutors. He jabbed and prodded away at me verbally, discovering my leisure interests and offering to talk about them endlessly. He dragged me into the Music Society, the Inventor Circle, the Philosophy Table. He even presumed to discuss the merits of scientific and quack remedies for my girl problems until I bordered on violence.

Whatever we did together, I never lost the feeling that his troll's head and mocking eyes were sharpened to laser penetration, tuned to a keener wavelength than my own. I sensed him watching the moment after next, observing the neurons stampeding into thoughts along the surface of the brain.

"What do you believe about telepathy?" he asked one day. It hit me rather like his intrusion on my one night with Delicias.

We were downtown on a cold November Saturday afternoon in an out-of-bounds bar drinking rum and coke. I took a slug of the cuba libre and tried to look like I was thinking while I drank it. "I think it might happen. In rare cases." Unfortunately my answer didn't cause him the embarrassed annoyance I remembered from that night.

He said, "You know what I think?" He pushed his exspectacles up the bridge of his sharp nose—a characteristic gesture.

I didn't answer, but none of Cernik's pseudo-polite overture questions ever needed an answer. He launched into telling me what he believed. Reduced to essentials and avoiding the Cernik gloss of reason that could have confounded computers and proved black white, it ran something like this.

He believed that primitive man and his forebears had possessed a well-developed sense, half-intuitive, half-telepathic. This had become blunted and shuffled into an evolutionary cul-de-sac by the development of speech communication and the individual's self-awareness. He instanced observations made in the early twentieth century regarding certain primitive peoples of Africa and the South American jungles. He recalled the unexplained transmission of news by them at a speed that outstripped the most up-to-date means of communication then known; he said it became

known as the bush telegraph. He spoke of the power of the witch doctors and juju, which could stretch out to claim victims at many hundreds of miles distance.

"It's a dormant power, Alan," he said, staring at me out of his troll's eyes. "If we could reawaken it, it would be of incalculable value. In space exploration for example. Faster than the telephone, more reliable than electronic communication."

"Very convincing, Grigor. How do you propose to develop it?"

"It won't be easy," he said. "One needs a carefully controlled series of experiments. One needs, for example, to find two individuals in whom the telepathic potential is very close to the surface. Familiars. Sympathetic brains."

"I suppose you already have two such subjects in mind?"

The question was mocking, but he stared at me hard. "Yes, Alan. You and I. Let's experiment."

"No thanks, Grigor."

"Oh, come on, Alan. Let's *do* something instead of just listening to low-IQ lecturers telling us things we already know. Let's try it. You can prove me wrong."

HE KNEW exactly the right hook to throw at me. When I didn't answer immediately he knew I'd swallowed it.

"Check your watch," he said. "I'm going to take a walk to the phone booth on the next block. In

exactly three minutes just clear your mind of everything. Concentrate on the green light over there and when the phone rings it'll be for you. Tell me what message you received. See if I come through."

He left the cafe. I watched the second hand measure a minute on my watch. I stared at the green light, trying to open my mind.

Abruptly I felt as if a cold band were circling my head on the inside. With a sense of almost physical shock I realized Cernik had made contact. There was no face, no voice, just an uncanny presence. Like words engraved on magnetic tape. *Evaluate and comment on Harrington-Jeans' contact micro-laser brain surgery as it bears on personality change. Out.*

My God! Cernik didn't go for anything easy the first time. A couple of minutes later the phone call light flashed. The bartender called me over. It was for me.

I darkened the booth. Cernik's excited face filled the screen.

"You see?" he asked. "You see, Alan? Come on—what did you get?"

"Dedicated celibate," I lied.

"You're five weeks, two days and twenty hours out," said Cernik sourly. "Come on—stop fooling around, Durain. I know you got it. Hell! I saw you get it. The damned language isn't adequate—I mean I experienced it with you. Come on, read it back."

He rarely got that emotional.

I grinned.

"Okay, Grigor. Stop shedding your skin. Quote, Evaluate and comment on Harrington-Jeans'—"

"Great. Excellent." He couldn't wait for me to finish. "You know what it is? It's the prime question in next week's prelims. I've handed it to you. Research it all you want."

"For crissake, Grigor. I don't need anyone to help me crib out my prelims."

"You're missing the point, Alan. Do you realize what we just did?"

"You patronizing jerk! You could have sent me something less embarrassing."

Cernik stared at me in dazed fury.

"You dumb bastard," he squawked.

"Forget it," I told him. "It was a cute party for a dull Saturday afternoon. That's the last time I play circuses with you, Grigor."

But it wasn't. That sonofabitch didn't know how to stop once he'd gotten his antennae tuned to an idea.

The Experiment (it had to have a capital E) became an obsession. The prelims came and went. I had opened the Analytical Paper with nervous disbelief. There it was. How else could it be with that god-dam sorcerer's apprentice stuck firmly to my life? *Evaluate and comment on Harrington-Jeans' contact micro-laser brain surgery as it bears on personality change.* Cernik beavered away at me, some-

times cajoling, sometimes reasoning, sometimes raging.

He had discovered that we were the only two constructs in the class. All the others had conventional parentage. He claimed this as a bond. He argued that maybe our exceptional powers sprang from it. He raved about extending the Experiment to a control group chosen entirely from constructs.

II

CERTAINLY there was a kind of attunement of an exceptional sort. From the first crude experiment in the cafe we moved on through that fall to more and more sophistication and refinement. We found by the use of a kind of key thought of call sign we could call up one another. We could do this even at considerable distances. Even when one of us was sleeping. Cernik became so absorbed with it that his studies began to suffer. He used the university data-processing and memory storage banks to produce vast patterns of probability and review hundreds of case histories where any hint of ESP was recorded.

His music machine was abandoned in favor of computers and data storage. One morning in the small hours, surrounded by calculations the point of which I had lost track of hours before, he stared at me jubilantly. "Alan. I'm going to write a paper and present it. I think

we're on the threshold of something big. I think either one of us could exchange with the other. Like going in and out of a house. We've reduced the body to a sophisticated container. One of us could die, but both of us could go on living."

"Go to bed, Grigor," I said. "You publish that damn paper and both of us will be on a one-way ticket to rating zero. You know about unauthorized experiments. Forget it."

"We can't let it go! We can't!"

"We can for tonight," I said. "Put the tape and the computer away."

I don't think he was listening. "We have to go on with it, Alan."

But I knew when I left him, still reluctant to pack up, that it had to be over. We were at the end of the line on the Experiment.

I began thinking about how to break it the same night. I had to be careful in case Grigor turned up in my mind and read me. I shielded it from him, working away at it day after day.

I didn't get anywhere. All the time I didn't get anywhere I had to humor him. I played along, cooperating in what to him was now the low-key side of his obsession. I avoided the big one, but I knew he was always thrusting, always working toward it.

Then the solution dropped on my head like Newton's apple. It was lucky. It came from an unexpected source.

It was the New Year's Ball. People went home for Christmas; came back for the New Year's Ball. It was a big campus occasion.

Delicias Disch was there. She was still having her long and satisfying affair with the engineering student, but around two A.M. I found myself upright in her arms. It was some kind of switch-partner's dance. It was gay and noisy and intoxicated.

"Hi," she murmured in the seething gloom. "How are you making out with the Crazy Elf?"

"I'll survive. Me and my sanity both."

"And the experiment?"

"What experiment?" I asked.

Delicias tilted her chin and stared mockingly into my face. "I often wonder what's going on in his wedge-head. Don't you?"

I didn't answer.

Delicias asked, "Don't you get tired of trespassers?"

"They could be tedious. What do you know about trespassers?"

"Enough." She steered me away from a partner switch, keeping to the fringe of the dancers. Suddenly I got that tight headband feeling. My mind went blank then lit up blindingly.

"What did you say?" I croaked.

"Nothing." Her pretty face mocked me again. "But you heard?"

"For crissake!" I groaned. "Not you, too—"

"Uh-huh," she said. "Me, too."

Ever since I was in bobbysox."

"Mind you don't let Grigor find out."

"I'll mind," she said. "You ought to mind, too. He's a fanatic and his ideas are dangerous. This kind of experiment needs close control." Someone in a carnival mask blew a paper streamer into our faces. Delicias pushed it aside impatiently. "Take my advice. Get out now."

"Thanks for the advice. The principle's sound. How about the method?"

"There's a way," she said. "Worked for me. Might work for you."

"You'd better tell me fast. This dance is damn' nearly through."

"It's crude but fairly effective."

"Go ahead. Tell me."

"You want me to tele—"

"Like hell. I've had enough of that. You stay in your skin. I'll stay in mine. Talk."

So Delicias told me.

It was a while—maybe four or five days—before I found an opportunity to try her idea.

IT WAS the winter vacation. Most of the students had gone home again after the New Year's Ball or were on holiday trips. Cernik and I didn't have real homes—just guardians for parents. Often we stayed around the campus with the other constructs or plain dedicatives using the facilities.

Cernik had gotten wary of pushing me too hard. He still worked away at his obsession. I had the feeling he was biding his time, waiting for the right moment to push me over the brink into the big one. I kept on shielding from him, even more careful now that I had a break-away to try.

I was working in the microfiche library one late afternoon when the librarian came down and said there was a call for me.

I took it on her phone. The caller was Cernik.

"Alan," he said. "I'm ready to move into a new area. How are you fixed?"

"I'm busy," I said, feeling my heart rate rise. I kept the visual button on cutout. "Why in hell are you using the phone anyway? I'll be down in my pad in an hour. Look in."

"I'm up at Calella. I've been up here two days."

Calella was a mountain camp belonging to the university. The place held full research facilities and computer terminals linked to the main complex at the university. It was usually overburdened with bookings for special projects, but probably not during holidays. A student was only supposed to go up there with a professor. I wondered how Cernik had made it.

"What are you doing up there, learning to ski?"

"I'm ready to move into a new phase. I told you."

"Grigor, I told *you*. I won't go on that exchange try. It's strictly no-go, negative, bust."

"It isn't that. We're not quite ready for that, Alan. Help me with this one. I'm sure I'm ready to go."

"What is it?"

"Are you all right?" he asked. "You sound peculiar. Cut in the screen."

I was having to keep my hand shielding the microphone. My heart was pounding and I was scared it would put up my respiration rate and give me away.

"I'm okay," I lied. "I just don't want a long conversation. I'm in the middle of research. Are you going to tell me what your new phase is? If not, I'm off back to the microfiche."

"Visuals," he said. "Quite simply. Visuals. I want to see if you can see out of my eyes. I can see out of yours."

I took a deep breath, tried to make the exhalation sound like the sigh of someone whose primary aim is to get back to more absorbing work.

"What do you say?" insisted the troll in the snowy woods, seventeen miles away.

"Okay," I said.

"Marvelous! I took a chance coming up here. I know you haven't seen this place—or have you?"

"No."

"So anything you see will be category one proof."

"Right," I said. "Count on me."

"What time will I teletrans?"

I took another deep slug of air. I needed it.

"Oh, think me around twenty-one hundred."

"Fine. Be with you, Alan."

"So long," I said.

The line blanked. I went back to the microfiche, but gave up working after ten chaotic minutes.

I was nervous. I thought about calling Delicias for a recap but abandoned it. I was on my own with my mad friend now. I packed my notes and recordings, went out to the town and bought a bottle of bourbon in a liquor store and came back and waited.

I HAD an hour and forty minutes before Cernik called. Considering there was that amount of time, I didn't drink much of the bourbon. Cernik called right on the hour.

I had grown used to the sensation of a tight band around the inside of my skull. This evening the whisky was creating a new one outside. I shut my eyes in case Cernik had any smart ideas about looking out of them right away and saw the slight haze around the furniture and the bourbon bottle.

Alan.

Grigor.

You made it right on time. The thought poured back and forth much faster than speech, faster than you read these words.

Alan, let's settle down. Let's do a

softwave routine.

Cernik's softwave routine was any one from a series of prearranged formulae. He chose.

Six-oh, I told him.

Good.

He started another one. He was in the middle of it when I heard a shout of laughter. It was mine. *Grig—you mixed it. You transmitted*—and I gave him a salacious version of R^2 .

The hell I did!

Try again. What's wrong with you?

Nothing's wrong with me. Calm down! Calm down! Here we go.

I hit him hard with this one. I put the block in the circuit as soon as he got started. I turned the preset message inside out. I made the words fall apart into letters and dance obscurely. I bounced them back into his head and made them reel around taking off their clothes, shouting drunkenly.

Alan—for crissake! Cernik's control was iron. He kicked the mischief and his gnome face came boring into the surface of my brain. He was angry, baffled. My God! There's something in the circuit. Are you okay, Alan?

I'm fine, I said. I giggled and with my eyes still shut clutched the bourbon and poured a hot swig of laughter down my throat. I'm fine, man.

You're not, damn it! Something's wrong or someone else is plugged in. Let's break.

Okay, I said. But I wouldn't let him go. I hung on to him. Thoughts threw up on the lawns of his mind. Words were thick and slow. I felt him cursing, tearing himself free. I let a couple of goat thoughts rut rudely on the broad prairies of Cernik's Experiment. I had them foul up his perception with their idiot pleasure. You're off balance, Grigor, I hurled him. You're falling! You're falling over.

He broke suddenly and smoothly and I was left sitting on the floor, feeling sober and ashamed and wondering what the hell would happen now.

After a couple of minutes I pulled myself together. I hid the bourbon, washed the glass, aerosoled the room, sneaked down to the showers and sobered up under a long drench of cold water.

Cernik had only the oldest kind of skimmer, but he covered the seventeen miles from Calella in around twenty-five minutes. To say he came storming into my pad would have misrepresented him. Can you imagine a cold, utterly silent whirlwind with exo-spectacles and a wedge-shaped head?

"Something was wrong," he accused. His eyes behind the lenses held an insect's unblinking stare. "It was at this end. I felt it." I noticed a bruise developing on his forehead.

I was lying flat on my bed. I could still feel the indigestible tide of bourbon lurking in back of my

throat but I had it licked.

"Sure something went wrong," I agreed. "You've been working too hard, Grigor. The storage systems have gotten overheated. The output valves scrambled and you teletransmed me absurdities. You ought to give it a rest."

I don't think he even heard. He squeaked, "You've ruined a vital experiment, Durain! You've put us back a month!"

I shrugged. "Knock it off, Grig. Go get some sleep. Two days solitary up at Calella have made you flip."

"Listen," he hissed (I could hear that first night of Kalipaj ranting away somewhere behind the venom in his throat). "Listen, Alan. We've got to go on. We need to do visuals. Next chance we get. I'll find some other place . . ."

He went on like this for about half an hour, restoring those rolling plains of consciousness my Delicias-inspired break-away had polluted with cunning and split with earthquake.

It was all wind in the grass. Next day he was notified that he would be called before a disciplinary tribunal for breaking the rule governing utilization of the Calella facility. By the fifteenth of January the room next to mine was occupied by a bowlegged Mexican girl who was a student of the nervous system. Cernik was kicked out for indiscipline. They marked him down a social bracket and out of my life.

III

CERNIK wasn't an easy man to forget. But life and work rolled on and after a while days piled up on top of his memory like a cairn of stones. Every time I thought about him or awoke recalling his scouting the fringe of a dream, I wondered if he was trying to break back. He never came.

For several weeks after he left university I daily expected him to try. He didn't. He was probably embittered by the Calella experience. Maybe he thought I had been the one who told the university authorities about his breaking security. The cairn of days stayed silent. The passionate elf-ghost had abandoned it.

The elite class dissolved and went on to individual achievements. I transferred successfully to the Midwest Commemorative Research Center for two years to study the bio-chemistry of the brain.

I had a generous professor named Phil Strickes. At the end of the two years he took me with him onto a small research team at Ohio Tech to explore cause and effect of activity in a silent area of the frontal lobes. Later a certain famous argument succeeded in identifying it for posterity as Strickes' Zone.

I was still at Ohio when the activities of a team of astronauts began to capture the news.

They were backed by a vast pro-

gram of international cooperation and encouraged by the development of a variation of Telemaun's Move. Telemaun's Move had promised for a long time to exploit and convert to fact the fanciful but impractical theories of spacewarp.

After secret trials they warped an unmanned probe to Aldebaran. They recovered it, too. The way began to open for manned missions within the suns and planets of the galaxy.

Between the preceding sensation and the current the astronauts held prime spots in all newscasts. Soon their faces became familiar in all our homes as they emerged in mannikin reality from the tri-di screens. One of them was already familiar to me. Older certainly, rid of the monstrous exo-spectacles in favor of contacts, his head even more disproportionate to his shrunken frame, the neck wounds concealed by the smart high collars of the spaceteam uniform.

It was Cernik, grown, if possible, more restless, enthusiastic, piercingly earnest than he had been as a freshman. After his banishment from the university he had volunteered for space frontier work and his wedge-shaped head and shrill eyes had levered and burned his way to deputy command of this experimental corps.

I was painfully conscious of him during the next months. The exploits of the Target Team (this was the popular name for them) were

often the leading news. They created the same kind of public interest as the earliest space voyagers to the moon and Mars had done in the twentieth century. Cernik was often identifiable in spite of various disguises in deep space outfits, warping here, rocket driven there, smiling into the inquisitive cameras on fleet recovery vessels, as purposeful and relentless as ever.

Another year and more went by with Cernik lurking on the borders of my life. From time to time the wedge-headed troll would jog into my consciousness—never deliberately as he had used to do, but on a new wave of public interest.

I felt well insulated from him. My own work on brain chemistry was absorbing and I had my own kind of success and reward. Less spectacular than Cernik's, but tangible enough. Now and then I had a perverse desire to think an old call signal and see whether the magic would turn in its six-year grave. Prudence always saved me from that final indiscretion. The circuits stayed shut. The Experiment had been a freshman's game, not for revival.

THEN on a crackling spring morning when the world outside the laboratory window looked innocent enough to be trusted, Strickes called me from my work. Strickes never called anyone from his work except in an emergency and I hurried along to the teaching

unit where I knew he would be.

From there, discouragingly, the world looked less innocent. Strickes' office, adjoining the teaching unit, was cramped and looked out on a sunless corner of the lawn and the crematorium. A colorless, ghostlike shimmer of smoke rose from the stack above it, shadowing the air.

I watched it as Strickes said, "Alan, only heaven knows what reason I have been asked to release you immediately to the Heights. Special duties. You are to travel immediately. There's a warrant waiting for you to collect it at Administration. You go down to Houston on the stratorocket. Show the warrant. Report to Major Sompting."

"But, Phil—I—why?"

"I don't know why. I've just repeated to you everything I know and the orders I received. I don't question the Heights. Neither do you."

"I don't know anything about space," I said weakly, but while Strickes had been talking something had jolted in my memory—something like insomnia that twisted and wouldn't lie still. "Don't they think my work here is valuable?"

Strickes turned away and became absorbed with the papers on his desk. I knew there was nothing there of great importance. Strickes would have been summoned from a lecture to receive the request to relieve me of my duties here. There

was nothing he needed at his desk. He said, "Why don't you just go without argument, Alan? It won't make any difference in the end. I hope we'll see you again soon."

I went to Houston. It had kept its supremacy as an administration center since the beginning of space travel. People in the business called it The Hole in the Sky. For me it was a hole in the head. I felt the omniscient presence of Cernik the astro-gnome.

Everyone was expecting me—men, machines, everyone. Major Sompting's office was underground on the southwest corner of the complex. When the elevator stopped the lights said Flight Planning. I didn't believe it. It was crawling with security, human and mechanical. I didn't believe what happened when I fed my ID fiche to the computer and it let me into Major Sompting's office. Major Sompting was Delicias Disch.

It was like walking quickly backward across your life. Delicias grinned. Her flax-colored hair was shorter to keep it off the major's tabs on her collar, but she was still the same sympathetic, warm and loving person. Then I understood why my memory had jolted when Strickes told me about the summons. Sompting was the name of the engineering student Delicias had tied up with at the university. They must have married afterward.

"Hello, Alan." Her hand was as warm as ever. "Wonderful to have

you with us. It's been a long time."

"For heaven's sake, Delicias! When is anyone going to tell me what this is about? Are you going to tell me? Have *me* with you. Who's you?"

"Us now includes you." Then she told me.

She had always been good at briefing. We didn't waste many words.

TARGET had run into difficulties that didn't get the publicity accorded to their more spectacular exploits.

There were communication problems. Serious ones. Evidently photophone tracks got bent under the Telemaun Move and ordinary radio beams took months to relay a signal to the galaxy and achieve a response.

"Somebody had a bright idea," said Delicias. Warmly and kindly she smiled. Her trim bottom showed in the tight skyblue uniform pants as she paced the office. "Pro-Commander Cernik. You remember Cernik?"

It was just a kind way of letting his name into the conversation without provoking panic. Remember Cernik? Who was going to forget him?

"Who could forget him!" I echoed aloud.

"Good. He sent a recommendation to Heights that Space A and A should set up an investigating unit to explore the possibility of tele-

pathic communication to supercede mechanical systems."

"No," I said. Maybe I even got up out of my chair. I don't remember clearly. Maybe Delicias pushed me back gently. Yes. I remember her perfume—a neat, unfussy perfume like wet, cut grass.

"No." I repeated. "No."

"Listen, Alan. Just listen, won't you!"

I watched her walk away from me, toward me, away from me, toward me—skyblue bottom, ever-kind face, skyblue bottom, ever-lovely face. She talked.

"I don't know whether you remember that I moved over to psychopathology when I left Norfolk. Then I got into hypnosis and psychomanipulation. Gerry—my husband, Gerry Sompting—was drafted into the engineering corps on Target when Target was still known by a computer code number in Space A and A and nobody knew whether it would go or where.

"When Cernik got his idea Gerry and I talked it over and I put up some thoughts of my own to my professor. To keep it brief, we had some further conferences with brasshats and think-tank bureaucrats at Heights. They asked me to formulate a research program on Cernik's teletrans idea. They gave me this pretty uniform and a platoon of go-go men, women and machines.

"I need about six subjects who

have proven ability in the technique. I thought of you at once. The six are to match our six front astronauts in Target. So here you are."

"I won't do it, Delicias." I told her. "Sorry to give you the trouble of bringing me here, but I want to get on with my own research. I finished with that old party game five years ago. I won't have that crazy gnome stitched to my mind and I don't want any link with his. You've got a nonvolunteer."

"It's not as easy as that, Alan. Heights are sold on this now. They're throwing an avalanche of resources behind it. The guardians have given the nod. Cernik is big medicine. He put up your name. Mine, too. I'm sorry. You're drafted. It'll be easy. Everything will be under strict control."

It was easy—easy for them. Everything was under strict control. Including me. They didn't let me leave Houston. The avalanche of resources rumbled down. Everything a VIP prisoner needed from a toothbrush to female companionship materialized out of the unlimited bank accounts of Heights.

I was continuing that rearward march over my life. Once again I found myself part of an elite, cosseted, coaxed, urged to greater endeavors. We were four men two women, each of us with some extraordinary sense less blunt than in millions of our fellows, being trained to tune it to communication

across uncountable distances.

We worked. The psychomanips worked on us. On the route toward ultimate sophistication I recrossed the territory of my student days. I developed concentration, thought codes, felt the tightening of the invisible band around my forehead, learned not to reject the alien presence in my mind, the intrusion of others into the last human refuge.

I didn't look forward to the inevitable encounter with Cernik. When it happened it was quickly into sinister low key.

I didn't expect him to be surprised. For one thing, I knew he had suggested my name. So he would expect to see me.

I anticipated some carefully planned argument to swamp with enthusiasm any reluctance I might still feel, but he had changed.

He was brisk and the mental energy still crackled away, but it was channeled now; concentrated like a laser beam.

"Glad to have you with us, Durain."

Everyone in Target was glad to have everyone else with them. It was like a password. Every time I sat down at the teaching machine I expected the headset to tighten its embrace and the false mechanical voice to tell me: *Glad to have you with us.*

We talked about the project. Cernik paced up and down. Everybody on Target paced up and down. Cernik said, "I don't know

how far Sompting has developed the thinking, but it seems to me extremely important that we proceed toward not only communication, but control. As Target develops and we move into a full exploratory field we shall be sure to encounter situations where restraint and control exercised from home may be needed to retrieve situations of grave risk."

"That is reducing the distant individual to the level of a machine," I said. "In which case there is little point in flying manned missions."

"Not so, Durain. The first essential is communication. Mind can't communicate with a machine—but only with another mind. Control might well be the only lifeline if local conditions or emergencies place the distant individual and his crew and maybe—ultimately—his passengers and cargo at hazard."

"And what if the reverse happens, Grigor? Suppose the local risk, emergency or hazard is fed back from outlet to control?"

He stopped pacing and stared at me. Although he had discarded the old-fashioned spectacles he hadn't yet disciplined his reactions to escape the nervous push toward the bridge of his nose.

"I hope you aren't going to let your idealistic absolutism betray this experiment, too. What you suggest is possible but unlikely. If the distant mind is thrown into a state of confusion it will hardly be

able to reverse the teletrans control—"

"What do you mean 'betray'?" I said in a voice that was slightly weaker than I would have liked.

"I mean Norfolk," said Cernik coolly. "Target might have been five years ahead right now if you hadn't brought everything down at Norfolk."

"You can blame yourself for that. The Experiment stopped because you got caught using Cella." It was a half-truth, but valid. "In any case, you can't claim that about Target since you couldn't have been contemplating it then and nobody knew about the communication problems it would throw out."

"You wanted to bust it and you busted it," said Grigor informatively. "I don't know how. I just hope you don't have any similar desertion in mind here. It could end in disaster."

"I wouldn't be here if I had any doubts," I lied.

Cernik's smile was intended to defrost the ice on his face, but it merely served to underline its presence. "Okay, Durain. That's the past anyway. We're not going to quarrel about it. Let's think about what progress we made and what we're going to do now."

We thought about that and discussed it. We talked about the old days, too, now that we had shoved the collapsing skeletons uneasily back into their cupboards. In spite

of the new entente, there remained this low-key feeling. "Betrayal" was the word he had used. It was an emotive word. I began to get the feeling that Cernik probably hadn't forgiven me for Norfolk and certainly hadn't finished punishing me for it.

THE research went on at full speed, but always controlled, always carefully monitored. We studied, we trained, we concentrated. Our diets were watched. Machines produced careful programs for our mental activities, our physical fitness, our love lives. (They didn't have much bother with mine). We sat at teaching machines and in front of lecture screens. We passed tests. We paced up and down. We were all glad to be with one another.

After about six months, Delicias Sompthing pressed the go switch on the first trial. Whether for reasons of diplomacy or because the machine so ordained neither Cernik nor I participated directly. Transmitter (base) and receiver (distant) were respectively at Houston and in one of the Space A and A Earth orbiters. Messages passed. They were simple messages, but the relay was exact. The President sent congratulations. Major Delicias Sompthing was promoted Pro-Colonel.

From simple teletrans Target moved to readback of flight data and ground control instructions. Now everyone was in it. They

spread the distance first to the moon, then to Mars, then to an elliptical round trip out of Solar and back. It all worked. Transmission was instant. The Mars trial met fierce electrical storms and the ERT flew a meteor shower. Nothing made a difference. Teletrans had ceased to be research. It was now a development program.

All the control subjects were matched with a ship commander. I was matched with Cernik. Who else? All the things we did were easy because we'd done them before and now everything was sharper. Delicias' team, men, women and machines, had sharpened the fine telepathic sense in me and made me an instrument. Sometimes the tuning was so fine I felt the feather-lightness of Cernik's flight helmet and sensed the winking lights on the inflight computer console.

Cernik wanted to bypass the first minor tests when it was our turn. The explorer end of Target already had a mission planned to Sector Five of the galaxy and Cernik was anxious to go ahead with it and skip the elementary trials.

Control said no. They say that the irate little elf almost materialized out of the tri-di arena in his rage. Cernik was an important man in Target. He knew the vice-administrator on Mars. He could get through to the group controller at Space A and A. But it didn't make any difference. We had to observe

the program. And we did.

He won one concession. We did the orbiter test and a near-space test in one day. They and the ones that followed were a complete success. The machine said we were fine—nothing to worry about.

Cernik came through on the tri-di after the moon test. His wedge-shaped head and keen eyes radiated satisfaction. "We got a nine alpha on that, Alan. Nine alpha! Brilliant!"

"I feel exhausted," I said. Nine alpha was a maximum rating. You couldn't get better. "We went too long."

"The hell we went too long," squeaked Cernik. "Listen, you and I are going to be the first to operate on a real Target mission. Don't say you're going to flake out on me now as you did at Calella."

"Don't worry, Grigor. I'll see you out and back safely." His intellectual bullying hadn't been able to resist slipping in the reproach about Calella. I tried to transmit to him a quick twinge of the neuralgia that was skipping between my right optic nerve and the center of my head, but he had shut down.

"Keep in training," he said dryly. "The machine says we're the best. No problems."

IV

SOMEONE the machine did have a problem with was me. It couldn't understand why I didn't

have a lovelife. It kept racking its circular brains for a solution. I was embarrassed because I guessed Delicias and some of her lieutenants were seeing the reports.

"Why don't you punch me out of that section of the program," I appealed to her one day. "Please?"

"Sorry, I can't do it. You'd figure every day on an exception report. The director doesn't like exception reports."

So our tireless electronic slave went on scouring Earth and the colonized parts of Solar on my behalf, looking for a mate.

What relevance had this, you ask impatiently, to Target and Cernik? Why in hell go paddling up this backwater? Be of good cheer. Everything was relevant in that most relevant of all possible worlds at Houston.

Delicias called me out of a rest period one afternoon.

"Come on up to the residence," she said. "There's someone I want you to meet."

I went up under mild protest. Rest periods were short and infrequent on the Target Project.

Delicias was sharing her comfortable lounge with a girl of about nineteen or twenty.

"Meet Klara," she invited. "She's joining the psychomanip team. Klara's been working at the Martian unit."

Klara gave me a limp hand. She was plain and flat-chested and looked undernourished. She had

messy lip rouge and atrocious eyebrows and her smile was lopsided, but I sensed she had a powerful lot of brain linked to the inside of her apple-green eyes.

I was a bit mystified about why I had the privilege of a private introduction to someone who was clearly going to be a junior member of some Target ancillary squad. If I'd been brighter I would have guessed.

"Klara's going to take on your intensive tp-sense buildup attunement pre-expedition," Delicias told me in computer jargon. "You'll be seeing a lot of one another in the next couple of weeks."

"Fine," I said to be polite. "Glad to have you—glad to have you around, Klara."

She didn't say anything. She just grinned her nutty grin and stared at me out of those eyes. I had a queer feeling in my belly. Like I was already asleep and safe in someone's hand.

That was the start of it. I still don't really know whether Klara had any real psychomanip expertise or whether they'd given her a crash course as an excuse, but within a couple of days we were making the machine happy. Those eyes had plumbed whatever constructional fault the gene architects had committed in me and set about rectifying it.

I had a lot of time to make up and I went at it with a determination that matched Cernik's student fervor. Klara demonstrated she was

no slouch, too. She worked at our joint private project with vigor and invention. We made love here, there and any place that was reasonably private round Space A and A. Our nights were wild and wakeful. In our days there were but two things to think about and the other one was the coming Target expedition.

Somewhat wearily, I suspect, the computer began to file me on exception. In quite a different way from the expected. The director didn't like exception reports. A tiny hint of disaster scuttled about in all the positive sunshine. But everyone was too busy to notice until it got through to Cernik.

We were doing a readout when it happened. A readout was about as near to Cernik's old "visuals" mania as the Teletrans Communication project could get. It was an instant scan of the instrumental data on the main flight console. Eyeball to eyeball—space to Earth. It was a pointless exercise while the spacecraft was within metering distance of Earth-control computers. It gained significance at warp entry and beyond where conventional metering got snarled in the new communication problems.

What happened was, I fell asleep. It could only have been an instant. I was aware of what had happened as soon as I became conscious again, but Cernik was howling down the photophone immediately.

"Control! Control! We blanked. What the hell happened? Alan? What the bloody hell? You cut out on me."

"Hold it. Hold it, Pro-Commander," Control soothed him. "Hey, Alan, we monitored a two-second blank on the readout. Did you read?"

"Sorry, Control," I mumbled. "I lost alert. I missed concentration."

"Are you okay, Alan? Do you need a break?"

"No. I'm fine." Goddam! We'd done the thing five times and Cernik was only just next door in lunar orbit. "No, I'm fine. Let's roll again."

Control set it up again. Over the headset I heard Klara's milky voice tell me. "Compose, Alan. Okay?"

"Okay." I composed. Cernik had stopped swearing audibly. He glared around in my mind instead.

You bum! You aren't going to flunk on me again, he thought.

I played disdainful. I thought him the start symbol. Ready to read. I daren't close my eyes.

We still stayed Nine Alpha. I was very careful after that. The machine looked at the incident and passed it as the point zero one error margin allowable.

Cernik didn't pass it. I sensed him brooding over it, notwithstanding his heavy program on the moon for the Sector Five mission. I managed to keep my incredible new lovelife rolling and my record clean. The machine was happy.

ABOUT three weeks to lift-off Klara got sick. Getting sick on a project at Space A and A wasn't actually a crime, but all the reactions to it suggested that it might be.

All she had was a mild throat infection, but they hauled her off into total quarantine, pumped her full of antibiotics and started a machine trace of how and where she might have picked up the bug. The trace was so ruthless that it would have made the Inquisition seem like a kindergarten party.

I don't remember whether they got anywhere with it. The direct result of the mishap was that I got a Chinese psychomanip as a stand-in for Klara. He had a beard and a limp. My lovelife dove from Nine Alpha to Omega Minus and, as the days wore by with Klara sealed in her glass aquarium like a captive passionfish and me trying to cheer her up through the glass in my brief rest periods, I started to develop a twitch. Decidedly nervy.

With all the assistance of my Chinese handler I still found it progressively more difficult to concentrate. My mind turned more and more often to Klara. Apart from her influence as a psychomanip there were other more tangible things she had for me. Hidden advantages which, behind an anti-septic screen and a bullet-proof wall of glass, were all too firmly hidden.

I guessed it wouldn't be too long

before my galloping melancholia strayed over into my work. I saw the pitfall digging itself and tried to go into reverse. I pleaded with Delicias to take me off the Teletrans Communication project until Klara recovered. No dice. I was vital now. Cernik needed me. If I pulled out, Target would have to switch to Team Two. The shot would be delayed and the nuclear punch fuel that was already cooking would have to be cooled and rehashed. Et cetera. In short, the whole damn' project would go phut. They'd just have to take a chance on my going phut instead.

I didn't disappoint them. "Who the hell was that?" yelled Cernik. He was in a flight simulator on moon. Target was trying to construct simulated minus-warp, warp, warp-plus conditions while we teletransed. A nonsense. When you go through warp it's a different time layer. "Who was that?" raged Cernik. "Stop the test! Stop the god-dam test!" I felt a prickle of cold sweat on my forehead. I knew I had sent him the face of the person who—these days—was constantly on my mind.

They called off the afternoon tests. Cernik refused to participate. I tried to get through to him on a radio link but they said he was busy and he wouldn't talk to me.

There was an inquest at Space A and A. The machine, Colonel Delicias, the Director, and my limping Chinese mindbender put their

heads and circuits together. They talked to me and tested me, did an EEG and then ran a comparison on the machine to see whether anyone else could take my place. There was no one.

It was late evening before I was released and could make my way to the quarantine unit to wave to Klara through the glass. But the aquarium was empty.

I burst into the nursing unit. "What's happened to Klara?" I asked the startled nursing sister.

"Oh, she's been drafted. Out of Space A and A and back to the Martian unit after convalescence.."

"On whose instructions?"

"Mr. Durain," she said severely with astringent douches and hypodermic needles in her voice, "certainly not on mine. The orders came straight from the director."

She must have telephoned Delicias and reported my strange behavior because Delicias tried to stop my going to the director, but I wasn't in the mood.

When I marched past the guards and into his suite with Delicias still pleading behind me one of the faces that looked up from around the table was only too familiar. It was Cernik. His eyes were like hot gray ashes.

"Klara!" I shouted. "What's happened to Klara?"

"Alan, this has gone far enough."

"Who sent Klara back to the Martian unit?" I glared from one to the other.

Suddenly, with that acute tuning of minds in which we had been trained, I knew that Cernik was reputed to have influence with the administrator of the colony.

"We can't have the run interfered with, son," said the director. "We didn't realize your programmed mate would have this effect on you. We'll recall her as soon as Target—"

"Grigor," I said. "Get her back. You did this. You had them recall her. Now get her back or you don't fly to Sector Five. Not with me as control."

"Alan—" pleaded Delicias.

"That's contrary to regulations," growled the director. "Do you realize what you're saying?"

"You can't let this bust the whole program." Cernik was standing right in front of me. "While she was here she was an obsession. The controls need absolute concentration. Twice, recently, Alan, you've lost me. Twice! Think of what could happen if you did that while I was in hazard and maybe there was something urgent to send or receive—or maybe you had to take control. You'd be responsible for the ship and the crew—"

"I want Klara back," I said stubbornly.

"We'll put in a recall as soon as the mission's flown," Delicias promised.

"Listen to this, Alan." The director fiddled with a tape machine on his desk.

The machine used all the weapons it could against me. Out of it came my lover's voice. Flat, lopsided, persuasive.

"Darling, when you hear this I'll be halfway back to the colony. I've thought about everything and what's been happening to you and I've listened to all they've told me at Space A and A. It truly is going to be better and safer and more logical . . ."

There was lots more like that. Logical crap that they'd sold her for my benefit. And it ended: ". . . so I love you and I long for you and I look forward to having you again in a short time when the mission's safely over."

And it was ironic and bitter as hell because before she had even finished speaking to me, bodiless, ghostlike, reduced to tape in a machine in that room at Houston she was dead.

The Colony Clipper was twenty-eight thousand miles downrange when a meteorite holed it. There were no survivors.

THEY kept it from me well. I suppose they were trying to make up their minds about what to do on Target.

In the end they told me. Klara had been dead three days. They'd made up their minds by then that, because of my irrational behavior after the redrafting of Klara and a certain animus I appeared to ex-

hibit toward Pro-Commander Cernik, I was a bad risk. A worse risk now, because they predicted I wouldn't behave logically in a set of unfavorable circumstances. Unfavorable circumstances!

So they dropped the countdown and inhibited the fuel and rephased the whole program and told me about Klara and handed me over to the psychomanips and the dream merchants and forgot about me. It was a nuisance, but that's life at Space A and A.

But I didn't forget about them. It was just small consolation to me that Cernik had to be stood down and didn't fly that first mission and so missed the glory.

That compensation was inadequate for my busted career and my lost love drifting weightless as a cinder out in the big darkness.

Through all the rehabilitation and the dreams of idyllic countryside and dusky girls with eyes like gazelles and breasts like lemons they gave me, I stalked Cernik.

Forget, they urged me, looking at my boiling mind. Look at this. Relive that. You are a construct. We made you. Now we will rearrange the genetic bricks a little in pursuit of happiness. You are a new Alan Durain . . .

I smiled blandly, nodding, playing with my model spacecraft, sitting cross-legged in front of the tri-di set watching the news bulletins for Cernik to cross my sights. Not saying much, eating honey-

crunch, I carefully concealed myself in the thickets of Strickes' Zone. Waiting.

Two or three or more years went snailwise across my life. The Target mission returned from Sector Five with its astounding Christopher Columbus stories of habitable planets. An exploration fleet was organized for a return and, once again, Grigor Cernik was headlines.

COMMANDER CERNIK WILL BE THE FIRST HUMAN TO SET FOOT ON A BODY OUTSIDE SOLAR, roared the newscasts. The wedge-shaped head and passionate eyes stared out and down at us all again from the machine. Grigor Cernik was to attempt a solo landing on one of the planets of the New New World.

My dreams became restless. The psychomanips shook their heads sadly. They offered me maps of exotic places alive with majestic scenery and delightful scents and happy people. I only looked at the star maps, calculating where Cernik would cross.

Sometimes a colonel in the sky-blue uniform of Space A and A came to see me. She was a woman. She was not Klara. She always came alone. She talked about "old times." What are "old" times? All time is time. It is neither old nor new. It is time.

"Now this," said the eminent stellar cartographer glowing on the screen, "is an electronically simulated map of the route to be traveled by the astronauts of Frontiers-

man, when they begin their long journey next week."

It was an ingenious map. I absorbed it and let it go on existing in my mind.

Every instant of *Frontiersman* shimmered in three dimensions in our homes. Mine was still shared with several other turbulent lives and the patient faces of the psychomanipulators who hadn't given up hope for me.

Soon the three depot ships of the expedition were in deep space and then into warp. After that there were no pictures from them—the cameras had to be content with pictures from Houston and the Mars relay.

Sooner or later they showed the lives of the teletrans controllers. Cernik's Control was a woman now, a brawny wench with coppery red hair. I thought her—on and off—quick as a flash. She was thinking about a movie actor and she had pain from an ingrowing toenail. I was in and out so fast she didn't notice. That was fine. It was going to be easy. I licked the honey-crunch stickiness from my fingers and watched the arena in front of the tri-di.

THE depot ship *Mermaid* went into orbit around the chosen planet early one morning. I didn't want to skip breakfast and have the psychomanips asking themselves questions, so I went down and pretended I wanted to help in the kit-

chen and I had early breakfast there.

Cernik's cutter blasted free at a little after nine o'clock Earth time. Still no pictures, of course, but he was doing an instantaneous commentary through his control. The cameras depicted her face from every angle.

I didn't want to watch the pictures. I went up to my room. I was switching on-off, on-off all the time. Quick as lightning. I breathed the false air of the space cutter's cabin, smelled the heating metal as Cernik skidded on the atmospheric layer, broke it and went through.

I am forty thousand meters above surface. Atmosphere indicates nontoxic gaseous content. Thin gaseous cloud. Metering on. All systems go. Conventional cameras go now.

I lay on my bed in my pad at Norfolk. I blanked and locked into her mind. Cernik's mind.

Thirty thousand. I have surface in view now. Surface in view now on monitor! Around 8/10 cloud. Eight/ten.

I thought him the old lock-in symbol, felt him jar.

The redhead laid it back, trying to eliminate interference. I bounced a visual of Klara's face off her mind into his.

Hold. Control, cried Cernik. Hold! There's a block.

I revved up. I gave him the goats to gallop in and out of his instruments and kick the readings

around. I took over the redhead and scrambled the emergency signals.

Emergency! Emergency! He tried to cut and hand it back to the depot ship which could assume mechanical control, but I hung on to him.

Switch to auto, someone was sending. *Switch to computer, pilot*. They were trying to take his red-head out.

You're falling Cernik, I thought. *Cabin is minus three-G*.

The bump as he floated up to the cockpit shell almost knocked me off my bed. I was laughing. I took off the redhead's clothes and made her dance around among the naked words and scrambled symbols in his lolling head.

The cutter was already off course when they fired the retroactors by remote control from the *Mermaid*. Too bad he was already pointing the wrong way.

I whistled down with him. The altimeter zoomed zeroward like a shell. I cut just before they impacted. I wanted to hold on to him a bit. He shouted something.

A while afterward the Skyblue Colonel came to tell me things. "Just before it happened he called your name, Alan. Just your name. I think he wanted you to step in and save him. It was a tragedy."

"Have some honeycrunch," I said. I offered her the box.

"Grigor," she said, taking both my hands and looking into my eyes, "your old friend. You know—

Grigor Cernik." I closed my eyes. I knew about her. I knew her powers, too. She wasn't going to see inside where I had something precious hidden. "They sent down a salvage party. They found the cutter. They couldn't find Grigor. A tragedy. I thought you'd want to know, Alan. Alan!"

Evaluate and comment on Harrington-Jeans' contact micro-laser brain surgery as it bears on personality change—I commented soberly. I picked up my model space-cutter and sent it arching noisily into the corner of my room. It was empty. No Cernik in there.

The Skyblue Colonel went away sadly. She may not come back.

I hardly leave my bed now.

Night after night the horrified face of Cernik penetrates my dreams.

Nothing the psychomanips give me deters him. He is trying to escape. Of course I haven't told them who is the intruder in my dreams. They might want to experiment. After all, Cernik might well have told them that one of us could die, both of us could go on living. And he still has a lot of dying to do. I have a lot of living to live. Revenge is not a word I have used anywhere in this account.

Like he said, the whole thing is relative. Matter and antimatter, writing in a mirror, the other side of the sky. I. Cernik.

Glad (as they say) to have you with me.

★

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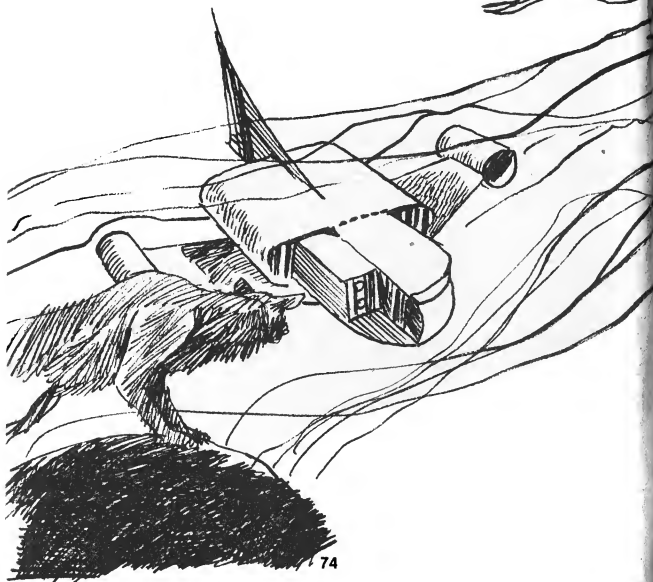
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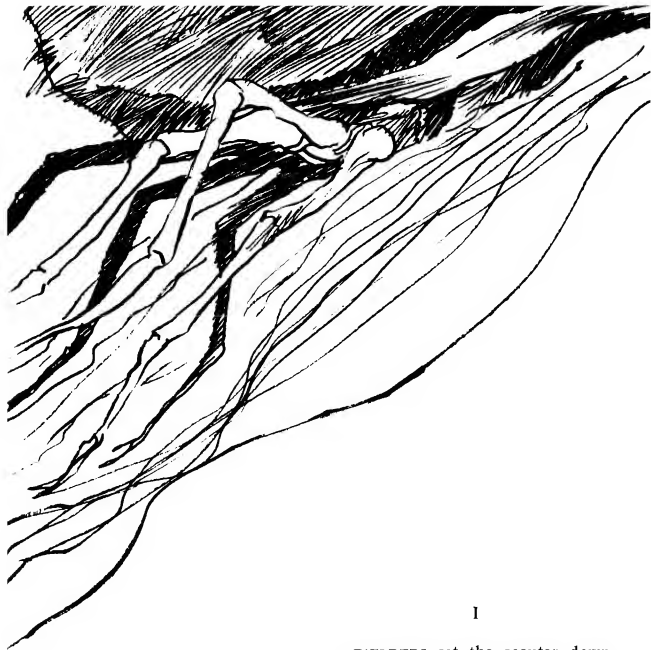
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SKYVEIL

SYDNEY J. VAN SCYOC

*When the laws of life clashed
with the laws of man—does
anything remain whole?*





I

SELDERS set the scouter down near a rocky outcropping at the edge of the broad inland plateau. The forest below was a smooth-limbed stand of branching ivory stalks extravagantly draped and woven with silken veils—scarlet, saffron, aquamarine, violet. The setting sun fingered laterally through the diaphanous veiling, underlighting it. Selders stepped from the scouter, sucked a quick breath—light, dry, faintly sweet—

and unberthed the hoverscooter. He tested local gravity. It was pleasantly light. Scouter alarm set, necessary gear transferred to the smaller craft, he lofted and skimmed planet-west along the plateau wall. He raised glasses and scanned the dusky air above the forest. It was empty.

Deliberately Selders dropped down the wall of the plateau and arched across ivory stalks hundreds of meters tall. Within minutes his canopy alarm buzzed. He peered around. A single skyveil approached high from his right. Mansize, the insect propelled itself across the sky in uneven surges on incongruously fragile wings. Its black carapace was dull, its compound eyes like mirror-studded tumors. Nearing, the insect abruptly skirled brilliantly patterned scarlet skirts from secondary wing cases and skimmed down at the hoverscooter, spitting a swath of filmy white substance.

Selders' throat closed in instinctive panic. He dropped the craft and scooted sideways, evading the arthropod's entrapping film. The stuff floated impotently down through the air. The insect whipped scarlet skirts and surged after the craft again. Selders initiated a vertical climb, then darted sideways toward the plateau wall and topped it.

The insect did not pursue. It hung in the air on billowing skirts, compound eyes breaking late after-

noon sunlight into glittery shards. Selders set course directly across the plateau. When he glanced back the insect held point at plateau's edge.

Some kilometers later stalk forest gave way to badlands. Selders drifted down to bob across its rubbled surface. Then, beyond the badlands, the sun suddenly flared rose-dusky through the focusing lens of a single large dome.

When Selders set down at the Pan Humanoid outpost a welcoming party materialized immediately, at its fore a big, bear-shouldered man in his thirties, curly brown hair tumbling down over a high forehead.

"Director Brown?" Selders guessed.

Brown bared big white teeth. "I am. Trouble with your primary vehicle, Commander—"

"Captain, Federation Protective Authority."

"—or are we meeting an impromptu inspection?" A flick of the wrist opened the facility to Selders' pleasure.

Selders shook his head. "Neither. There's a lot of naked stalk forest north and east of here. Have you noted any particular pattern to the trader activity involved?"

Brown's rounded forehead compressed. "Trader activity? What does this world have of commercial value?"

"Veiling extruded by the predominant insect species is being

gathered by freelance traders and distributed through a half-dozen major exotica dealers. It's appeared on markets all over this sector of the federation. And you haven't been aware of activity in the forests?"

Brown's smile was deprecating. "The Pan Humanoid effort is focused entirely upon the humanoid form that occupies this plain, Captain. The badlands beyond are the habitat of a particularly unpleasant carnivorous form we call the rockwolf. I don't permit members of my party to venture up that way for any reason. So we're effectively buffered from the forests. But is it illegal to gather veiling for commercial purposes? If it's done in moderation and without disturbing the insects?"

"No. But the Authority isn't convinced it's being handled so ethically. Neither am I. I observed substantial stretches of stripped and depopulated forest on descent this afternoon."

"Well, you're welcome to scan our files on the toilers, our humanoid subject species. You'll find a few observations on rockwolf behavior. None, I'm afraid, on the skyveils. We simply have no knowledge of their habits—or interest in them."

"I'll study your files. Assuming I can draw meal privileges and a berth for the night."

Brown bared big white teeth. "Certainly."

OVER the evening meal Selders sifted first impressions of the Pan Humanoid party. It consisted of Brown, his second in command, Farelli, and a dozen assorted fledgeling specialists, all eager to discuss their efforts to facilitate advancement of the toiler species. The species was presently hampered by its entrenched custom of setting out substantial numbers of young to appease the appetites of night-prowling rockwolves.

"And you're convinced this isn't a measure for keeping down excess population?" Selders probed.

"No chance," Farelli responded positively. He was an intense young man with lank black hair and expressive hands. "This plain stretches for hundreds of kilometers west of here and there's more on the other side of the forests. Most of it unoccupied. Plenty of seed and forage, too. The toiler population could multiply a thousandfold comfortably. Instead they're barely holding their own. And that's with every fit female bearing up to twice a year."

"Hmmm. And the offspring they abandon are in no way defective?"

Brown fielded the question. "They are literally the most fit, Captain. Can you imagine it? This race sacrifices ninety per cent of its young to appease a prowling carnivore. Out of fear. Out of ignorance. And this is the only factor that is holding the race back. Once we overcome this—"

Selders shifted restlessly under Brown's evangelical zeal. "But you are successfully starving out some of the wolves now?"

Brown leaned forward earnestly. "We are. We aren't permitted to use weapons, force, or even chemical repellents. Protective Authority ties our hands in a hundred ways. But it is certainly within guidelines to persuade one species to discontinue being easy prey for another."

"It's within guidelines," Selders agreed tersely. But someone, he felt certain, was guilty of violation in the matter of the forests. His glance flickered over the party. Every member, according to Pan Humanoid files, was amply credentialed. It seemed likely to Selders that those credentials were fraudulent in at least one case.

But Selders caught no dissonance as the party moved from meal to conference table. A quarter-hour later the evening's resume was interrupted by a screeching cry that rose threadily beyond the dome, ending in a high-pitched gargle. Selders' head whipped around.

"Rockwolf!" The party scrambled to the night-darkened panels of the dome. Outside the screech rose again. Selders quivered involuntarily. Brown's ingenuous eyes were suddenly fierce. "That's what we're up against, Captain—that animal."

The animal's voice split night again, rending it like rotten cloth, then dying with a choked yelp.

And a second voice joined it, shrilling, high and distinct. Brown's big palm slapped dome. Then he was running out.

Selders heeled after him, the remainder of the party following. "The western quadrant," Brown shouted back. "And we're completely powerless. There's nothing we can do—unless we can bully the mother into pulling the child back into the burrow."

They raced across hummocked ground, the night sky starless overhead. Minutes later Brown halted abruptly, penciling darkness with his handlamp. The animal he captured in the beam was ugly, low-slung, with lumpy jowls that depended from a broad, flat head. It glared into the light, one eye blood-red, the other yellow. It hunched on sturdy forequarters, its coarse pelt ruffled.

BROWN stamped his feet, uttering an inarticulate cry. The animal was not intimidated. It sprang from the beam of light. With a loping trot, it moved across the hummocked ground.

Another shrilling cry—and a second beam of light spotlighted a tiny humanoid stranded in the dirt before a plastered mud mound. Selders had a brief glimpse of a minute body with flipper-short arms and a round little head. Then Brown slapped the beam away.

But the rockwolf had already seen. It sprang across the mounded

terrain. The burrow mouth behind the child was tightly plugged with straw. Squealing with fright, the infant toppled to its side, rolled to its belly and squirmed in a futile effort to escape. Its shrill cry shivered the night.

Brown bellowed and began to slap feet to ground fiercely. Behind him the party danced and shouted, voices harsh. The rockwolf wheeled and glared at them. Then it lowered its broad head and slowly stalked a half-circle around the struggling youngster. It faced the humans again from beyond the child, red eye and yellow burning by lamplight, ugly body hunched.

Selders swallowed painfully. Perfectly formed body, round head, fat little limbs, minute fingers and toes . . . he could comfortably contain the infant in the palm of his hand. Instead the same hand closed helplessly around the grip of his pistol. Every rule in the book forbade intervention.

Abruptly, with a yelp, the rockwolf lunged, catching the infant's neck in its jaws. The child's cry died in mid-note. The wolf shook the limp body. Again red eye and yellow defied the helpless humans. Then the animal trotted away with its prey.

"Powerless," Brown grated. "Because if we blast that animal—"

Selders' stomach hung limp and sour. "Me or someone like me will pull you right off this planet. You'll never wangle your way back."

Selders' hand released the pistol grip and fisted at his side.

"That's right, Captain," Brown said bitterly. "If we commit violence, we won't be permitted to render the greater good. So we're well motivated to observe Authority guidelines. Did you know that in four years we've had to lift only one man off before his tour expired. Medical reasons. He tried to save one of these infants."

"He was mauled?"

"No. The animal snatched the child right out of his arms. He's been under psych treatment for seven months now. Could be they'll eventually salvage him. Right, Captain?"

Selders' shoulders tightened. "I don't set the guidelines." Neither, he was tempted to add, did anyone back at Authority Central. Nature set them. The Authority was charged only with enforcing non-interference.

Brown flashed his beam back at the plugged burrow. "We'll talk to the mother tomorrow. We'll probably find the bones out here somewhere later in the week." Snapping off the lamp, he strode into darkness.

NEXT morning Selders appreciated why Pan Humanoid had dubbed the subject species toilers. When he and Brown ventured across the hummocked plain, the little humanoids scuttled busily. They were thigh-high to Selders,

their heads like grapefruit on thin, loose-fleshed necks. Some carried sheafs of grass and wild grain. Others industriously swept loose dirt with bound straw or patted their burrow mouths with dampened palms. When Brown passed, they piped at him, bobbing round heads, black eyes winking brightly. Brown returned their incomprehensibilities distractedly.

"Are these family burrows, Director?"

"They're shared by mother and young. Adult males, the few there are, sleep along the corridors that connect to the communal granaries."

"Oh? There's an imbalance of sexes?"

Brown's face was grim. "Not at birth. But a mother seldom abandons a daughter unless she's been replaced by another. She's likely to set out a son as soon as another pregnancy is established."

When they reached the area of the previous night's kill, a small body dodged hastily into the burrow. Brown's lips thinned. He motioned Selders to sit beside him in the dirt. "Waiting for Alo," he announced in a falsetto voice. "Waiting to talk."

Round eyes peered at them from the interior of the burrow. "Alo," a small voice piped.

"Waiting to talk," Brown repeated, lowering his voice. "Waiting to hear why Alo put her Dalo out to the wolf."

Alo's smooth round head emerged from the burrow. She had neither ears nor nose, only a rosebud mouth and bright black eyes. "Rockwolf called. Alo put Dalo," she offered placatingly.

"Rockwolf called other nights. Alo did not put out Dalo."

Warily the little creature emerged, her tiny body bent. Loose flesh layered her neck and arms. She spat into the palm of one hand and patted at the burrow mouth. "Rockwolf called. Big hungry voice. Dalo time."

Strain harshened Brown's features. "But why last night, Alo? Why not keep Dalo? Now Alo has no child in her burrow."

Alo's bald head bobbed nervously. "No Dalo." She patted her lower belly. "Other child instead. Malo? Zalo? Talo?"

Brown's jaw tightened. "I know Alo expects another child. That's why I have talked to Alo so much lately. But what if Malo-Zalo dies in belly? What if Malo-Zalo gets sick on first milk and chokes? Then no child at all, Alo."

Alo's black eyes winked. "No child," she agreed.

Selders cleared his throat. "Alo," he said experimentally, "did you want Dalo's food for the second child?"

The little humanoid peered at him alertly. "Dalo? Se-con-dalo child?"

"Number two child," he tried again, hoisting two fingers.

"Dalo was her fifth," Brown interrupted. "Her fifth in three years."

Selders grunted. "Then did you think, Alo, that you would not have enough food for Malo-Zalo if you kept Dalo?"

Alo's rosebud mouth pursed. "Food all around."

"Then—why? Why did you let rockwolf kill Dalo?"

"Rockwolf called. Big—"

"—hungry voice," Brown finished for her bitterly. "Keep rockwolf happy, right, Alo? Plenty of babies. Always make more. What's a little blood?" The big man jumped up. "Never mind that your entire race lives out here on thirty square kilometers of land. Never mind that you'll never pull yourselves out of the dirt unless you start raising your young. Never mind anything but big hungry voice!" Brown turned abruptly and strode away.

The little humanoid looked after him, bright-eyed. "Alo," she piped at Selders and then scurried back into her burrow.

II

"How long do you intend to devote to this mission, Director?" Selders asked, catching up with the big man.

"As long as it takes. I'll die here if I have to. I'll die pulling these people out of the mud and starting them down the track to development. They have the potential. You

heard her speech, Selders. You saw those opposed thumbs. You—"

"What I don't see are many young," Selders broke in. "I thought your files indicated substantial success in this western sector of the burrowing area."

Brown's eyes whipped away. "Yes. We've concentrated our effort here with the idea of establishing a seed population that will impose the new cultural pattern over the entire burrowing plain. And we've had considerable success."

Selders indicated the busy population at their feet. "Then where are the surviving young? Do they keep to the burrows?"

Brown jammed a hand back through his hair. "They keep dying, Captain. There's an endemic cysting disorder. Sixty to seventy per cent of the juveniles we bring through the first year reach puberty, which comes near the end of the second year, and—bang! Naturally the toilers have no established treatment. But I have requested a pair of surgeons. When—"

"Then it is defective offspring that are being sacrificed."

"No. There's absolutely no sign of the disorder until shortly before death. No one can predict which youngsters will fall victim. All we can do is wait and watch—and once we have our surgeons, operate. It should be a fairly simple procedure, one the toilers can manage after we've brought them a little farther along."

"How long is the life span in individuals who do attain adulthood?"

Brown shrugged. "Up to twenty years."

"And you think such a brief span can support development?"

"Look at what our own race accomplished in the centuries before we attained our present longevity. And without outside assistance."

"True." But Selders was not greatly impressed with Brown's little people. And the toilers' developmental tribulations were not, after all, relevant to his own purpose here. "I'll be hopping out to one of the depopulated forest sectors this morning. Do you want to accompany me?"

Brown's brows flared in surprise. "Isn't it extremely hazardous to invade skyveil territory?"

"Not the depopulated areas. And you might like to be present to defend your interests. There is speculation at Authority Central that some member of your party is at least partially responsible for the forest situation. If I don't find clear-cut evidence of outside interference, I'll have to turn in a recommendation that your group's authorization be rescinded."

Brown stared at him. "You—Captain, don't you appreciate the significance of what we're doing here?"

"My job is to appreciate the significance of those stripped forests."

Turmoil darkened Brown's eyes.

"Then I'd better accompany you."

LESS than an hour later they skirted the plateau eastward. In the distance big insects floated in the air on brilliant skirts. Below, sunlight fingered silk-draped bowers.

"The material looks too fragile to have much commercial value," Brown commented.

"It's not as flimsy as it looks." Selders scanned the horizon with glasses. "And there's the first area we'll visit. Have a look?"

Accepting glasses, Brown studied the denuded stalk forest ahead. "The lack of leaves is normal, of course—or is it?"

"It is. The stalks transact most of their business through their outer peel."

They reached the area without incident. Selders sheered off the side of the plateau and hopped the tops of the stripped stalk forest. Sunlight shadow-patterned the ground hundreds of meters below. Occasional swaths of torn veiling clung to ivory stalks. Selders dropped the craft between the limbs of giant stalks. When they touched ground he rummaged through the hold, producing a pair of harnessed liftpacks.

"Have you ever maneuvered in one of these?"

Brown accepted the proffered pack reluctantly. "No, I'm afraid I'm not particularly adventure-some."

"Well, these will give us better mobility if we run into trouble. They'll lift the weight right off our feet." He strapped the second pack across his shoulders. "Use the second setting. We'll be able to climb trees like a pair of monkeys—but without worry about accidentally taking altitude even in this light gravity. The packs aren't that heavily powered." He unreeled the handset and clipped it to his belt. With a quick pressure of fingers he lifted his weight from his feet and raced lightly across the soil surface.

They explored the stripped portion of the forest quickly, finding nothing more significant than a single large casing that lay empty on the ground. It was spun of a silken substance and bore a jagged incision at its narrower end.

Both men examined the bulky object. "A cocoon?" Brown suggested.

"Looks like it."

They continued through the stripped forest, encountering neither live nor dead inhabitant. Then silken fairyland lay ahead. Sunlight glowed through elaborately draped and interwoven hangings, scarlet, aquamarine, emerald, saffron. They paused. Selders assayed the quality of silence that haunted the veiled forest. "I don't think this sector is populated either. But if you want to wait out here for me—"

"I'll come." The decision was obviously painful.

"Then let's take it slow. First

setting." He led away. The diaphanous hangings the skyveils had extruded to shelter their habitat were draped and woven to create a series of rainbow bowers. Despite its fragile appearance, the veiling was tough and run-resistant. With the aid of their liftpacks, the two men scrambled up branching ivory stalks. Meters above ground, Selders glanced back to see Brown grimly clinging to an ivory stalk.

"Heights bother you?"

The big man flushed. "I'm a land animal, Selders."

Selders flashed a reassuring grin. "Don't worry. If you fall, flip to three. You'll land easy. Just try not to entangle yourself on the way down."

DURING the next hour the two men explored lowly bowers and lofty ones, tightly woven ones and airy ones. Then, returning to ground level, they stepped into a lofty central space partitioned with violet hangings that fell hundreds of meters to the ground. Both men halted, sucking breath simultaneously. The enclosed stalks were thickly hung with big fibrous pods. "Hundreds of them," Selders breathed.

Before he could climb to cut one down, Brown yelled. Selders spun. The big man backed away from a dusty black object on the ground.

It was the carapace of a dead skyveil. Selders bent over it. Man-size, undamaged, its sheen was dulled.

The black claws were folded stiffly before the thorax—the compound eyes were clouded. He shoved his hand into the shell. The organic contents had dried. When he opened the primary wingcases the fragile little wings crumbled to the ground. But the brilliantly patterned parachute skirts remained at once tough and silken. “No deterioration. So there might be a market for this, too.” Which could account for the absence of insect corpses in the depopulated forest.

Selders scrambled up to chop down one of the big pods. He trimmed back a flap and another dead arthropod lay before him. He plunged a hand into its shell. The contents crumbled at his touch. “Which tells us nothing. Except that we have no physical evidence of a massive kill—yet.” He gazed up at bulging layers of pods. Pulling small bags from his pocket, he took samples of dried tissue from the two insects. He labeled the bags. “We’ll stop by the scouter before we head back. I want to run a quick analysis on these tissues. And I want to recheck the records, too. I don’t recall that anyone has ever entered inhabited skyveil forest afoot, but I want to be certain before I undertake it.”

Brown’s forehead creased apprehensively. “Afoot? Wouldn’t that be—”

“—extremely hazardous? I don’t know. The veils defend their airspace, certainly, but they may not

perceive an individual approaching afoot as a threat. What I do know is that this is a dead forest. It’s telling me nothing. Except that we’re dealing with an insect that preserves its dead. How much significance do you see in that?”

“I have no frame of reference at all where insects are concerned, Captain. I actively dislike them.” Brown’s big shoulders hunched with painful decision. “But if you decide to enter the stalk forest on foot I will accompany you.”

Selders grinned. “The supreme sacrifice.” Brown’s daring, it was apparent, would never be legend.

It was late afternoon when they lofted from the scouter. Analysis of insect tissue revealed no trace of poison. And scan of the micro-records told Selders that no human had ever entered populated skyveil forest afoot. Selders studied Brown’s sweat-filmed face. “If your duties can’t accommodate two consecutive days of neglect, why don’t you appoint a stand-in? Farelli maybe?” he suggested tactfully.

“No. I won’t delegate anyone to undertake a venture of this nature.”

“Suit yourself.” Selders set course into the late afternoon sun.

AFTER the evening meal, Selders was restless. He strapped on his liftpack. “I’m taking an evening skim. Anyone care to accompany?”

His volunteer was a scrappy little Oriental named, incongruously, Emmanuels. He mastered the lift-

pack easily—"I did a little packing on Nelding's World—" and the two of them skimmed through the night, handlamps picking hungrily at darkness. Beneath their boot toes toiler burrows were tightly plugged.

Night slapped cool and welcome against Selders' cheek. "Are you making the toilers your life's work?" he probed. His jaunt was inspired partly by restlessness, partly by desire to give anyone who felt the need an opportunity to speak to him alone.

"These little people?" Emmanuel flashed teeth derisively. "I'm a two-year man here. I plan to cover a dozen races before I take retirement."

"Some particular reason?"

"Curiosity mostly. Maybe I'll put together a comparative study. Counterpose intelligent humanoid races against, say, intelligent reptilians, aquatics, avians—you get the idea?"

"Mmm. So it doesn't sound like Pan Humanoid is your natural mother."

"Ha! Listen to Brown and you'll think humanoids are the only life form worth studying. He restricts us to the plains area because the wolves are dangerous—he says. But I've walked right through the badlands on my off-duty days and never had a toe nipped. And I've learned something interesting—the veils prey on rockwolves."

Selders' interest sharpened. "You've observed the activity?"

"I have. Evidently the veils stung the animal first. I heard the commotion from a distance. By the time I was near enough to see what was happening, the wolf was convulsing. The veils spat a white, stringy stuff to immobilize it. Then they cocooned it and carried it away into the forest."

"They didn't react to your presence?"

Emmanuel snorted. "I decorated the underside of a boulder until they were gone. The way that cocoon was writhing—well, I didn't spot the veils' stingers, but I didn't need a dose of what they injected the wolf with."

Selders grunted thoughtfully. He flashed light over Emmanuel's night-shadowed face. "Have you ever observed trader activity in the forest area?"

Emmanuel shook his head emphatically. "The rockwolves are nocturnal, so I'll walk their country by day. But I'm not trespassing on veil country night or day. There is something very disconcerting about an insect the size of a man."

Selders agreed. There was.

Half an hour later they neared the boundary of Pan Humanoid's focal area. At a distance they heard the screech of a wolf. Selders tensed. But the animal's cry went unanswered. "I suppose the wolves concentrate now on the portions of the plain not covered by the Pan Humanoid effort?"

Emmanuel touched his handset

and settled upon a hummock. Selders took ground nearby.

Emmanuel said, "You know, I'm not convinced they do. Some of us suspect the wolves are instinct-patterned to hunt only certain areas. The party had rough nights their first two mission years. After they first persuaded the toilers not to put out babies hungry wolves prowled the sector every night—all night. Ear plugs were the only thing that kept some people sane. Evidently the wolves were working certain predetermined stalking areas—and finally they were literally starved to extinction."

But not total extinction. The distant screech made that obvious.

The answering shrill made it devastating. Selders' spine quivered. Emmanuel jumped up from the hummock. "Sorry, Captain, but I'm not staying to listen for the kill." He fingered the handset. His feet left ground.

Selders followed. But their retreat was not swift enough. A few minutes later they heard the abruptly truncated cry. For a moment Selders empathized with Brown's desperate determination. The air that slapped his cheek was no longer cool but chill.

THE air was still chill next morning when Selders and Brown lofted from the Pan Humanoid outpost. "We'll hover to within hiking distance of the stalk forest if the veils will tolerate air traffic that

close to their territory. We'll go afoot from there."

Brown's glance was agonized. "Through wolf country?"

"The wolves should be sleeping. There's minimum danger." He studied his companion. Was his agitation of a guilty man or simply of a very apprehensive one? "What do you think we'll find in the forest?" he probed.

"I—I hope we'll find a reception no more hostile than you anticipate."

But Selders was anticipating on several different levels, a fact he did not share yet with Brown. He took the hovercraft into the morning sun.

They dropped in low over the badlands. With glasses, Selders could see skyveils floating in the morning-misted air, skirts billowing. None seemed disturbed by the approach of the hovercraft. Nor was there reaction at ground level. Selders found a level spot and set the scooter down.

Brown emerged from the craft with patent reluctance and strapped on his liftpack. He demurred when Selders proffered a belted pistol. "Captain, we're not permitted to use weaponry against local forms under any circumstance."

"Today you're not only permitted but ordered if either of us is attacked. Necessary force is authorized in the interest of the greater good."

Brown echoed the last phrase numbly. He strapped on the pistol. "I—in case you haven't perceived, Captain, I have a morbid fear of insects."

"It shows—a little." Selders led way across the badlands.

The ground was rugged, boulder-strewn. Irregular clumps of vegetation leached starveling existence from the rocky soil. There was no sign of rockwolf beyond an occasional slumbering body burrowed deep into rocky shelter. But twice they stumbled across bones. Selders poked the second skeleton with the barrel of his pistol. "Doesn't look like he fell prey to his brothers. The bones would be scattered. So we have natural causes, possibly starvation."

Brown's eyes showed flint. "In that case, I hope I can claim personal credit for the death."

Selders shrugged. "Claim it."

They were nearing the rainbow shadow of the stalk forest when they heard a curdling animal shriek behind. Selders whipped around. Automatically he fingered a liftoff.

A hoarse warning from Brown brought him back to earth. A pair of skyveils emerged from the silken forest, surging through the air on incongruously fragile wings, gaudy skirts retracted. Selders tossed himself into the shadow of a boulder.

The big insects disappeared across the rubble landscape. Selders glanced back toward the

forest, then skimmed again in the direction of the animal cry.

II

NEAR a dip in the ground, a coarse-furred rockwolf thrashed wildly, teeth snapping. The skyveils settled several meters away. Their multi-faceted eyes shattered morning sunlight. The larger stroked swelling pouches at the side of its head. Mandibles dropping, it spat a banner of filmy white substance at the convulsing animal. The wolf's own frenzy entangled it firmly. Then the insects spat alternating layers of the sticky film, flipping the increasingly bulky bundle with black claws.

Ten minutes later the rockwolf was a writhing silken cocoon. The two insects wove a ropy cradle around it and bore it back toward the veiled forest.

Selders settled back on his heels, briefly considering the significance of what he had witnessed. Insect sting had not produced convulsions in the wolf, as Emmanuels had prepared him to expect. The convulsive state had clearly preceded the appearance of the veils. The wolf's cries, in fact, had guided them to the spot. Thoughtfully Selders skimmed back to where Brown waited. He related the incident. "Do rockwolves commonly have mismatched eyes? One red, one yellow?"

Brown palmed his sweaty forehead. "Not to my knowledge."

"Then little Dalo's killer has met his fate. Unless there was another wolf out here with unmatched eyes."

Brown stared at him dumbly. His mouth worked.

But Selders did not have time to wet-nurse the big man through his reaction to the incident. "So let's go. I want to see how the veils dispose of that cocoon."

Brown found his voice. "Maybe they simply encased the animal to preserve it. Like the insect we cut down yesterday."

"Under the violet hangings?" Selders shook his head. "Those were pods. This was a cocoon. Which certainly points to some interesting possibilities." Possibilities he didn't yet feel ready to put finger to.

He led way. Beneath the flowing rainbow hangings of the forest, morning was a composition in pastel shadow. Selders glanced around watchfully. A single insect hopped ivory branches high above, extruding a length of chartreuse veiling and draping it down the limbs of the stalk. Brown touched Selder's arm and nodded toward a bower of emerald veiling where a second skyveil sat grooming its wings. Neither arthropod gave sign that it noticed the human's trespass.

"I think we're safe as long as we stick to the ground and move

slowly. They don't appear sophisticated enough to take interest in an object that isn't clearly either food or enemy." Now as to how the convulsing rockwolf fitted into the skyveil scheme of existence . . .

The answer to that, he felt, would be of appreciable significance.

THEY walked the forest silently, warily, pausing occasionally to watch the big insects extrude and weave their silken auroras. An hour later they emerged in an unobstructed central well of stalks. Selders peered up.

Hundreds of meters above, upper limbs were hung with cumbersome white shapes. Selders slapped glasses to his eyes. Silken cocoons rocked slowly in the late morning sunlight. But one did more than rock. Slowly, tortuously, it writhed within its ropy cradle.

"We've found our wolf." With a quick stab of triumph, Selders passed the glasses to Brown. A single skyveil tended the cluster of cocoons, fanning them with gaudy violet skirts.

Brown stared up. When he lowered the glasses, he gaped at Selders wordlessly.

"Well? Do you begin to suspect that this is a hatchery?" Selders demanded. "And that we may have discovered an insect in wolf's clothing?"

Brown's pale eyes were tortured.

He didn't answer.

Selders continued his speculation: "If the veils were simply using the wolf as a hatching medium, a source of nourishment for their developing young, they would have introduced ovum or larva. Either into the wolf or into the cocoon as they bound him. We didn't see them do either. Maybe the wolf itself is the pupal form." And the convulsions, it followed, had merely been a signal of readiness.

Brown scaped up voice. "Of course. Something like that—it's obvious. Even to—me. Now." His feet took him backward. "And so we can return to the outpost. Now that we know—"

"Know what?" Selders demanded.

"Now that we know—"

The recording was stuck. "What we know is that now I'll have to climb those trees and cut into one of those cocoons, if mother-bug will let me. Because I didn't come this far to spin an unsupported hypothesis." Not even an unsupported hypothesis having so little apparent relation to his mission's purpose. "How good are you with a pistol?"

Brown shook his head. "Not very. I'm—I'm not normally a violent man."

"Plan to be one today if necessary. Here—" He slipped Brown's pistol from its holster. "Let's set the beam wide. Better you singe me than miss entirely if I run into trouble. I want you to keep this

weapon in hand and I want you to have both eyes on the situation every moment. The greater good, right?"

Brown licked his lips. "The greater good." The pistol quivered in his grip.

Selders' liftpack assisted him up the lower stalk. He kept an alert eye on the single veil overhead. She seemed undisturbed by his slow approach. From fifty meters, he glanced down to be sure that he saw the pistol in Brown's hand.

He saw it. He saw, too, the ghastly grimness that deformed Brown's features—a grimness reminiscent of Brown's expression the night little Dalo had been snatched by the wolf.

Snatched—killed?—in fact, by the wolf who hung twisting above.

Facts—what were they? As Selders picked his way limb to limb up the smooth white stalk some facts abruptly slid to rest in his mind, arranging themselves in patterns he had not anticipated. It was not only what remained of the rockwolf that hung above. It was also—in some fashion—what remained of little Dalo.

Little Dalo who, if he had survived his first year, would almost certainly have fallen victim during his second to the cysting disorder endemic to his race. It was almost, in fact, as if little Dalo had never been intended to survive, as if he were one of nature's disposables. If he had escaped consumption by outer force, inner force would have

inevitably destroyed him.

But would have destroyed what? A humanoid infant? Or an unrealized . . .

. . . skyveil? Selders' breath caught in his throat. His head snapped back. He stared at the big insect above. It was not cysts that destroyed juvenile toilers, he realized in an intuitional flash. It was engorged and deteriorating cell masses that should, in the absence of human intervention, have matured into the adult insect form. And that maturation somehow took place through the agency of apparent death at the fangs of the rockwolf. The rockwolf might—in some manner yet to be discovered—conceivably even be mate or merger-partner to the consumed toiler, his stalking cry a mating call.

So what existed on Selmarri was not three races, probably not even two, but one—toiler, the egg carrier or larval form; rockwolf, the catalyst or mating form; and skyveil, the imago. Or perhaps the rockwolf was a separate species preyed upon—how else could the sequence of events be interpreted—by toiler mothers who set out young to be devoured.

Which of course explained the toiler's lack of survival drive, explained why Pan Humanoid had to badger mothers to raise their young. For the toilers were not a species, not even those who matured to serve as breeder population. They were simply a form.

AND Brown? Selders stiffened. Brown had directed the Pan Humanoid effort here from inception. He claimed to know nothing of import about rockwolf or skyveil. But how could he have failed, given four years on a small world, to sense something of the relationship between his toilers and the other two forms?

How could he fail now? With the evidence suspended over his head? Selders was suddenly and painfully aware of his own exposed position halfway up the bare white stalk, skyveil above, Brown below. He twisted his head to peer down.

Brown stared up at him with the desperate ferocity of a man who sees his life's work threatened with obliteration. But that was only what Selders saw in the big man's face. In his hand, muzzle pointed at Selders, was the pistol Selders had obligingly set on broad beam. And in his mind, Selders knew, was another Selders artifact—three ringing words: *The greater good*.

Selders had only the big man's innate cowardice to bank on. That unfortunately appeared to have been temporarily negated by prospect of the greater good. Selders glanced up again, then quickly spidered sideways, putting stalk between himself and Brown.

Brown's mobility, unfortunately, was not as severely limited as Selders'. When Selders glanced down again, the big man had already loped the distance necessary to

train the pistol on him again. Desperately Selders peered around for prospects.

He had a choice: vertical or horizontal. Down would only deliver him to Brown, while up would take him into skyveil range without delivering him from Brown's pistol. But horizontal? If he leaped branches to the next stalk tree and the one beyond, then Tarzaned blithely away on skeins of scarlet veiling, his trajectory would carry him to the shelter of high silken bowers. Assuming that Brown was too shaken and unpracticed to bring down a moving target. And assuming that a little bit of legendary Tarzan still lived in Selders' arms.

He caught a deep breath and poised himself for the resurrection. Nimbly he leaped and skipped stalks until he reached a point where a swath of scarlet veiling hung within reach. He tested it. It seemed securely anchored. He glanced down. Then, yodeling, he tossed himself across space, clinging to slippery silken fabric.

Whether it was his vocalization that momentarily disconcerted Brown and simultaneously attracted the skyveil's attention, Selders never knew. But as he skimmed between stalktops, Brown's pistol sagged impotently. Selders threw himself to safety in a tightly woven emerald bower. He bounced twice, then wriggled through the woven fabric and scrambled upward until

he was concealed within a more casually draped indigo alcove. He crouched, clinging to the smooth stalk upon which the veiling was anchored.

When he glanced up toward the treetops, little Dalo continued to writhe in his cocoon. But his guardian no longer fanned. She had retracted her violet skirts and hopped to direct her mirror-studded eyes downward. Selders craned, seeking Brown.

Brown was no longer confined to the ground. He had set his liftpack high and he bobbed unevenly up a nearby stalk, one hand briefly grasping white branches, the other still closed around the pistol.

Selders' throat closed on his warning cry. He flared a quick glance up. Launching himself into the air so soon after Selders' own flight, Brown had definitely assumed new significance in the skyveil's eye. She held her fractured gaze on him, her black legs flexing. Then she uncased tiny wings and beat air from her perch downward.

"Brown!" Selders bellowed.

Brown's head snapped back. He stared up at the approaching insect. His physical response was total. His jaw sagged. His legs slackened. His fingers loosened. The pistol fell and Brown followed, his liftpack cushioning his tumble to a slow downward float.

Selders swung from shelter, furious incomprehensibilities piling up on his tongue. The big insect

beat near the falling man and flared gaudy skirts. They hung in the air side by side, insect and man. Glittery compound eyes met agonized blue ones.

And Selders was paralyzed. It wasn't until he caught the motion of the insect's mandibles that he obtained response from his own activator finger. His beam was set narrow. Raising the weapon, he burned a crisp-edged hole directly through the skyveil's head. And then there were two bodies tumbling.

AN HOUR later Selders and Brown lofted from the badlands. Brown still nursed his sprained hand under his armpit, his face stark and glistening.

"So there was no kill," Selders said. "No bug bomb, no violence of any kind. In fact, it was lack of violence that depopulated those stretches of skyveil forest. As a couple of your people guessed, the rockwolf is instinct-patterned to stalk only certain areas of toiler plain. And when the mature skyveil hatches, he is patterned to claim a certain section of the forest as home. So when you effectively closed down hunting—merging or mating?—on a broad sector of toiler plain, you halted maturation of insects who would have populated big stretches of forest. Evidently a freelance spotter noted the unguarded forests and commercial activity moved in. And now Pan

Humanoid is moving out."

Brown hadn't spoken since his fall. His voice was rocky. "If that—if that is what truly occurred—"

"You know it is—in the large at least. Details will have to wait study by experts. I think you guessed at some of it before today."

"But if it is, if I did, then the mature form doesn't survive for more than a year, Selders. Two at most."

"Obviously. Otherwise the forests could never have been so quickly depopulated. Insects seldom enjoy long lifespans in final form."

"But if we can salvage the toilers, if we can get surgeons out here to operate, to remove the cysts—"

"The ova," Selders corrected. Or the larval forms that fed on rockwolf through the period of metamorphosis. Only observation would clarify all the details of the reproductive cycle.

"If we can bring a little toiler like Dalo through puberty into adulthood, he will have a lifespan of up to twenty years. He'll—the waste, Selders! To permit a humanoid form to deteriorate into an insect, to let twenty years of productive life be sacrificed for a year or two in the forest. To let speech be lost, to—"

"But the guidelines are clear, Brown. Pan Humanoid hasn't been working with a humanoid species at all here. You've been interfering in the reproductive cycle of an insect species. Speech, manipulating hands—in this species they're not

ends in themselves. They're simply manifestations of a transitional form. Why they should occur I haven't the faintest idea—it'll be up to paleontologists to determine how this life form evolved. But it's the mature form that determines the ultimate classification of the species."

Brown's lips thinned. He glanced away bitterly.

Selders took the scooter high. He did not immediately set course back toward the Pan Humanoid outpost. Instead he hung in the midday sun, his eyes seeking the interior of the veiled forest where pastel shadow lay silent and deep. At a distance skyveils floated the air on brilliant skirts. *One year or two with sunlight hot and heavy on the carapace, with a gentle wind billowing the bold-patterned skirts. One year or two . . .*

. . . contrasted to twenty years scurrying in dark burrows, toiling?

Brown's forehead pulled tight. "Selders, have you no reverence for the human form? For your own kind?"

Selders sighed. "Not much."

"Yet when it came to a choice between the insect and me, it was the insect you sacrificed."

Selders' gaze flickered from the floating skyveils. He met Brown's eyes. "It was," he agreed. "But only after hesitation, Brown. And only because I knew you would never sacrifice another little Dalo-Malo-Zalo to your narcissism." ★

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A STEP FARTHER OUT

JERRY P. POURNELLE, Ph.D.

HALFWAY TO ANYWHERE

ONE of my rivals in the science-writing field usually begins his columns with a personal anecdote. Although I avoid slavish imitation, success is always worth copying. Anyway, the idea behind this column came from Robert Heinlein and he ought to get credit for it.

Mr. Heinlein and I were discussing the perils of template stories—interconnected stories that together present a future history. As readers may have suspected, many future histories begin with stories that weren't necessarily intended to fit together when they were written. Robert Heinlein's box came with *The Man Who Sold The Moon*. He wanted the first flight to the moon to use a direct Earth-to-moon craft, not one assembled in orbit—but the story had to follow *Blowups Happen* in the future history.

Unfortunately, in *Blowups Hap-*

pen a capability for orbiting large payloads had been developed. "Aha," I said. "I see your problem. If you can get a ship into orbit you're halfway to the moon."

"No," Bob said. "If you can get your ship into orbit, you're halfway to *anywhere*."

He was very nearly right.

SPACE travel isn't a matter of distances—it's a question of velocities. Most space systems designs begin with rough-cut estimates of present and near-term predicted technological capabilities, and one of the best measures used in design analysis is called "delta vee." This is engineer talk for a change in velocity and comes from the general mathematical symbol for change, the Greek letter delta or Δ . Delta vee, written Δv , is the

total velocity change a ship can make.

The nice part about delta vee is that for rough analysis it doesn't matter how you expend your fuel. You can burn it all up at once or make a whole series of velocity changes—the sum of delta vee achieved will be the same. Moreover, the total delta v can be calculated from the Specific Impulse (a measure of efficiency) of the fuel used and the fraction of the total ship weight that's made up of fuel. No other numbers are needed, not even total ship's weight. Given the total delta v, you can determine what kind of missions the ship can perform.

The other nice feature is that delta v requirements for any journey in the solar system can be calculated from well known parameters: mass of the sun, masses of the planets you're leaving and going to and the distances of the planets from the sun. Many refinements are possible, but rough estimates of delta v requirements for any minimum-energy journey can be run off on a slide rule in no time.

The least costly method of long-distance space travel involves transfer orbits, sometimes called Hohmann orbits after the German architect, Dr. Walter Hohmann, who first calculated the energy required to get from place to place in the solar system. Hohmann's book, *The Attainability of the Celestial Bodies*, was published in the mid-

thirties and was an important book indeed, because it showed that space travel really was possible with chemical rocket fuels.

Unfortunately, as Willy Ley noted in *Rockets And Space Travel*, Hohmann's book is nearly unreadable, combining Germanic scholarly thoroughness, a subject matter unfamiliar to many, lots of mathematics and an unnervingly complex style. Despite these handicaps his work remains important and the transfer orbits he described are the only feasible methods of getting to other planets from Earth, using chemical rockets. (see page 99)

In Hohmann orbits, the starting planet at GO and the target planet at the time of journey's end must be precisely opposite each other, with the sun between. Naturally, then, the trip begins when the target planet hasn't yet reached opposition—these journeys can start only at certain times. The ship departs on a trajectory that carries it into a highly elliptical orbit with one end of the ellipse just touching the orbit of the origin planet and the other touching the orbit of the target planet.

The delta v required for Hohmann trips to various places is shown in Table One (pg. 97). In every case it is assumed that the starting point is not on Earth, but in orbit around Earth. The numbers were calculated for me by Dan Alderson, who programs JPL's computers and is usually concerned

with real spacecraft such as Pioneer and Mariner; they're quite accurate, given the model used. For those interested, we assume the planets have circular orbits, all lie in the same plane and use conic section approximations.

The first important number is the fly-by delta v requirement. This assumes you just want to get close to the target, and after that you don't care what happens to the ship. In the real world fly-by probes can be useful afterward: the Pioneer series Jupiter probes, for example, may round Jupiter in such a way that they use Jupiter's attraction to fling them on toward other planets or out of the solar system altogether.

There was even a possibility of a Grand Tour, in which the spacecraft approached Jupiter and Saturn and then either flew past both Uranus and Neptune—or went directly from Saturn to Pluto, each time using the delta v gained from a close approach to one planet to get to the next. Congress wouldn't fund the Grand Tour and that opportunity is lost for our lifetimes—it takes a special configuration of planets to make the Grand Tour possible. But as I write this the people are preparing to launch Mariner 10, a probe that will use Venus as a slingshot to send it down to Mercury. And if all goes well Mariner will arrive at Mercury about the time you are reading this—or right soon after. (Mariner

is scheduled to arrive at Venus on Feb. 5, 1974, and at Mercury on March 29, 1974).

THE Pioneer probes carry the famous gold plaque with a code showing the origin of the spacecraft and line drawings of human male and female, on the assumption that some day they may be picked up by beings in another star system. Since the probe will leave the solar system with a velocity of only a few kilometers per second and must cross trillions of kilometers before there's any possibility of its being found we don't have to worry much about the aliens using it to track us back to Earth and conquer us. By that time—if interstellar travel is possible we'll have it.

It happens that I was present when that plaque—called "The Prague" by the TRW technicians who build Pioneer—came about. NASA held a big press briefing at TRW, a dog and pony show for science reporters. The NASA, JPL, and TRW scientists concerned with Pioneer described the experiments aboard and one happened to mention that Pioneer would definitely leave the solar system forever.

One of the reporters present was Eric Burgess who, with Arthur Clarke, founded the British Interplanetary Society back in the 40s. Eric became very thoughtful, and later that afternoon spoke to Carl Sagan of Cornell and some of the others in charge of Pioneer, point-

TABLE ONE

Delta-v required for various trips beginning at Earth orbit.

Target	Avg. Distance From Sun (Kilometers)	Fly-By Delta-V (KM./SEC.)	Marginal Capture Delta-V (KM./SEC.)	Circular Capture Delta-V (KM./SEC.)
Sun		21.249		200.786
Mercury	57,900,000	5.580	11.874	13.104
Venus	108,000,000	3.555	3.905	5.470
Earth	148,000,000	3.280	3.280	3.280
Mars	228,000,000	3.661	4.320	5.535
Asteroid	300,000,000	4.378	8.320	8.320
Ceres	414,000,000	4.691	9.530	9.530
Jupiter	778,000,000	6.322	6.583	10.315
Saturn	1,430,000,000	7.293	7.691	11.143
Uranus	2,870,000,000	7.981	8.469	11.277
Neptune	4,500,000,000	8.248	8.575	11.116
Pluto	5,910,000,000	8.363	8.841	10.972
Escape	infinite	8.748		

Values for Sun are very close approach and circular orbit at surface. Value for Earth is marginal delta-v needed to escape Earth's gravitational effect. Asteroid capture values are large because the asteroids have essentially no mass, and thus do not aid appreciably in an attempt to catch up with them after arriving at their orbital distance.

ing out what a unique opportunity this was to send a message to anyone "out there." It might take a long time to arrive, but at least it was going. The idea caught on and within a week the plaque was designed and installed.

Then, of course, came the complaints about the "dirty pictures" of nude men and women, but that's another story.

Table One shows, in addition to fly-by delta v requirements, the delta v you'd need to get into some kind of orbit around the planet: the bare minimum for capture and a circular orbit from which you

could land or observe closely. You can see the numbers come out at reasonable values—except when you're trying to get very close to the sun. One important number is the sun escape velocity. If you have that much delta v capability, you can get to other stars—anywhere, for practical purposes. It is important to note, though, that Table One assumes you don't start from Earth—but from *orbit around Earth*.

Since you need 7.6 km/sec delta v to get into Earth orbit in the first place, Bob Heinlein's top of the head remark was very close to correct.

Earth orbit is halfway to anywhere.*

In other words, the first step is the hard one. If you can get into Earth orbit you can get most anywhere you want to go. Unfortunately the disintegrating totem poles we now use to get into orbit are just too cumbersome and expensive to make spaceflight routine. Worse, they use up nearly all their total delta v getting into orbit and the rocket is thrown away—hundreds of millions of bucks into the drink.

THE upcoming shuttle reusable ship will help and is sorely needed, but there's a system even better than that. The concept I'm about to describe can use old rocket boosters over and over again—in fact, the rocket motor never leaves the ground. Only payload goes up.

This magic feat is performed by lasers. The basic design of the system comes from A.N. Pirri and R. F. Weiss of Avco Everett research laboratories. What they propose is an enormous ground-based laser installation consuming about 3,000 megawatts. In practice there would probably be a number of smaller lasers feeding into mirrors and the mirrors would then concentrate the

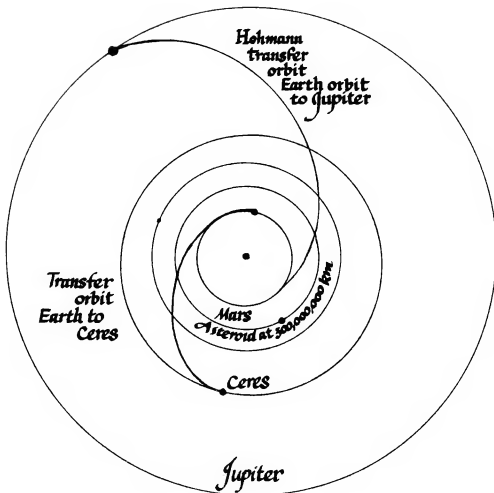
beam onto one single launching mirror about a meter in diameter. This ground station boosts the spacecraft—the ships themselves carry no rocket motors, but instead have a chamber underneath into which the laser beam is directed.

The spacecraft weigh about a metric ton (1000 kilograms or 2200 pounds) and are accelerated at 30 g's for about 30 seconds—that puts them in orbit. While the capsule is in the atmosphere the laser is pulsed at about 250 hertz (cycles per second when I was in school). Each pulse causes the air in the receiving chamber to expand and be expelled rapidly. The chamber refills and another pulse hits—a laser-powered ramjet. For the final kick outside the atmosphere the laser power is absorbed directly in the chamber and part of the spacecraft itself is ablated off and blown aft to function as reaction mass. Of the 1000 kg. starting weight about 900 kg. goes into orbit.

Some 80 metric tons can be put into orbit each hour at a total cost of around 3000 megawatt-hours. Figuring electricity at 3¢ a kilowatt hour, that's \$150 thousand—less than a dollar a kilogram—for fuel costs. Obviously there are operating costs and the spacecraft aren't free, but the whole system is an order of magnitude more economical than anything we have now.

Conventional power plants cost something like \$300 per kilowatt—a 3000 megawatt power plant

* Quibblers will know that you'd have to stay in the plane of the ecliptic or use a lot more energy to get out of it—and that the Galaxy itself has a very high escape velocity, in the order of 100km/sec from here.



HOHMANN TRANSFER ORBITS. The Target planet and the spacecraft arrive at the same point at the same time; Earth must be opposite that point at the time of launch. Hohmann orbits are actually ellipses with the Sun at one focus, and if the spacecraft does not near a planet it will return to the starting point—only Earth will have moved away in the meantime.

would run close to a billion dollars in construction costs. However, when it isn't being used for space launches it could feed power into the national grid, so some of that is recovered as salable power. The laser installation might easily run \$5 billion, and another \$5 billion in research may be needed.

The point is that for an investment on the order of what we put out to go to the moon, we could buy the research and construct the equipment for a complete operating spaceflight system, and then begin to exploit the economic possibilities of cheap spaceflight.

Many benefits could accrue to an economical system of putting payload into orbit. Some are commercial—e.g. manufacture of materials that can only be made in gravity-free environments might be facilitated. Others are not precisely commercial, but highly desirable. For example, the power/pollution problem could be enormously helped. Solar cells can collect sunlight that would have fallen into the Earth. They convert it to electricity and send it down from orbit by microwave. That's fed into the power grid, and when it's used it becomes heat that would have arrived here anyway—the planetary heat balance isn't affected.

Interestingly enough, it's now believed that orbiting solar power plants can be economically competitive with conventional plants, provided that we get the cost of a

pound in orbit down to about \$20. The laser launch system could power itself.

We don't even have to build a permanent power plant to get the laser-launcher into operation. There are a lot of old rocket motors around, and they're very efficient at producing hot ionized gases. Hot ionized gas is the power source for electricity extracted by magneto-hydro-dynamics, or MHD. MHD is outside the scope of this article, but basically the system calls for a hot gas to be fed down a tube wrapped with conducting coils—and electricity comes out. MHD systems are about as efficient as turbine systems for converting fuel to electricity, and they can burn hydrogen to reduce pollution.

The rocket engines wouldn't last forever and it takes power to make the hydrogen they'd burn—but we wouldn't have to use the system forever. It needn't last longer than it would take to get the big station built in space and start up a solar-screen power plant.

None of this is fantasy. The numbers work. Avco has done some experiments with small-scale laser-powered "rockets" and they fly. There are no requirements for fundamental breakthroughs, only a lot of development engineering, to get a full-scale working system.

Laser launchers are at about the stage rockets were at circa 1953. Fifteen years and less than \$20 billion would do the job and we'd have

a system to put nearly anything we wanted to have out there into orbit.

That doesn't seem like very much to get halfway to anywhere.

I DON'T remember whether I discovered science fiction or Willy Ley first. I do know that as a high-school sophomore I wrote a book report on the first edition of *Rockets and Space Travel*, and by the end of that year I was fascinated by the space frontier. Before that I'd never thought about going to the moon and beyond. After Willy Ley I thought of little else. I even took extra math in high school because I couldn't follow Willy's arguments without it—and when he referred to Oberth's books, I had to read those, too, and that needed more math.

Eventually I made a career in the space program, managing experimental human stress studies, writing spacecraft proposals and finally ending as a generalist—they called us systems analysts. For years we wrote science fiction without plots or characters. We called them forecasts, but they were sf all the same. It hasn't been hard to change over to the straight stuff.

It is one of life's ironies that Willy Ley didn't live to watch Eagle set down on the moon. Of the people I knew in the space program, I suppose fully half of them became interested in rockets and space because they read books by Willy Ley. So Willy didn't see it

happen, but I think he had as much to do with making Eagle possible as any man of this century.

And, of course, Willy Ley used to write *Galaxy's* science column.

I won't take his place, but I can try to make science and technology as interesting as Willy made it for me. Also, Ejler Jakobsson and I hope there will be reader response that will permit us to deal with questions that you feel need answers and cover topics of both immediate and long-term interest. While keeping in mind that readers, writers—and even editors—also need some fun.

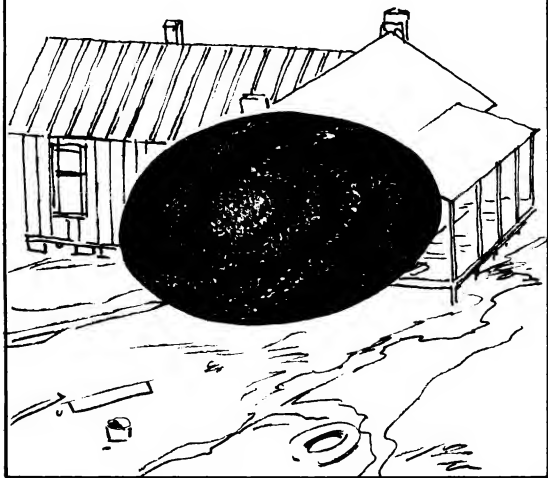
We'll consider any question about science and technology. We may also look into psychic phenomena, since the AAAS is starting a section on Psi—it's almost establishment now. For that matter, the AAAS has invited Dr. Immanuel Velikovsky to address an annual meeting—and you can be sure I'll report on that!

We also invite reader comments and information, since it's barely possible there are things going on that I haven't heard about. I'll try to follow up interesting tips and get interviews with people working at the far edges of science and technology. I'll also have some views about the effects of current technological trends on all of us.

Galaxy and I hope you will draw as much mindfood and enjoyment from this column as we expect to gain. ★

THE DISCOVERY OF EARTH

STEPHANIE TRIPP



The little alien became anything he wanted—and he left a gift . . .

THE discovery of Earth might slip by unnoticed. It might mean nothing. Wanderers might touch gently upon Earth many times and never think to notify the universe. A voyager might come and go, leaving a gift of himself incomprehensible and lost forever.

Solo entered the pale blue atmosphere of Earth. He guided his small ship carefully through the hot blue light. As he neared the surface of the land the color temperature shifted out of the blue range to long cool rays of red. He landed in the extraordinary red wash of the South Carolina sun.

Solo lay folded in his little ship as a child might lie folded within an egg. His body was exposed and sensitive to the color of light and he lay pale and cool as if wrapped in red cellophane.

It was late afternoon and late summer in 1963. The ship opened and Solo stood on the red soil of South Carolina. It was quiet outside on the country, minutely still as red dust. The hills were worn down, soft and deserted with age, left to die alone like old dogs.

Alongside Solo's ship lay the rusted knife-edged body of a junked automobile. Farther away,

across the soft red dust of the yard, there was a small house built of discarded lumber and corrugated metal. The metal hurt his eyes and Solo looked away.

Because there was no one to see him, Solo was barely defined against the light. He was pale and ghostly as a strange deep-water fish. Only his eyes of a fiery chrome green, and the life fluids beating within him, betrayed him as mortal and vulnerable.

Solo had no home but the little sailing ship. His soul belonged to a race of pale gypsies, but he belonged to no one. Solo was not a poet, but a poem. He was not a painter. He was the painting. His slender ghostly form belonged to no one and belonged to anyone.

What he was, was a trader. He had one gift to give in return for the form and shape of himself. His gift was a chrome-green egg as fiery as a panther's eye. Inside the egg lay the universe. Solo's unborn child.

Solo waited by his ship for someone to come. The little sailing ship lay collapsed in a vague transparent heap. It looked like nothing. It had no masts, no hull, but it was very much a sailing ship, running with its slender sail bent under the constant energy of light. Now it lay inert like a cobweb thrown to the ground. Only Solo's touch could bring it to life.

Solo waited. He pressed the soles of his feet into the warm red dust and watched the land. He let the red

light wash his skin and his eyes and he waited for the form and substance of what he could become.

By the time Solo heard the first sounds of someone coming, the red light of the sun had washed out into a clean pale gray light. Crickets and frogs had begun to shriek. The mule came along the hard black road, its head moving up and down with the clipping of its hooves. Close on its rump the mule pulled an ancient wagon which came creaking and swaying on large wooden wheels banded in iron.

The wagon and mule came as if wandering, as if the road only happened to be there, following beneath the wheels. The wagon was built of the same discarded boards as the house, pieces of broken wood that had all been part of something else and now were piled one on the other for a utility without form or beauty, or even the will to fall apart.

At the front of the wagon, high up on the narrow ledge, a yellow dog was riding high and cocky, fastened up tight against a skinny old black man.

THEY came all together, one to themselves, the old man's hand flapping with soft slack reins and shoulders humping with the shock of rolling iron. The wagon and the mule were the same, old warped boards resurrected, the mule long faded like a dead thing from the sea, the whole of them coming,

alone and single, old black man and yellow fur dog.

Solo stood watching and still as the wagon moved across the yard and stopped in a haze of dust. There was a space of silence as the wagon itself settled and became still. Then one of the mule's long ears dangled in Solo's direction.

All at once the dog came off the wagon in a high wild leap. Solo stayed where he was, pale and unsure, as the dog tore soundlessly across the yard toward him. The dog charged with terrifying intent, only to fall at Solo's feet. The yellow dog had found his mate. He leaped away, bounding stiff-tailed, stiff-toed, dancing for Solo.

The old man finally seemed to notice. He spoke to the dog. "You dog. Get away from that boy," he said.

The dog began running around the house, mad with joy. The old man continued unbuckling the harness from the mule and paid no attention to Solo.

Solo edged nearer to the old man. The old man did not look at him again after he had spoken to the dog. The old man had seen a hungry young boy with dusty brown skin. He did not need to look again.

The harness dropped to the ground around the mule. Still its ghost remained, a harness of long thin lines about the mule's body where the leather straps had worn into its skin. The old man rubbed down the mule with his bare hands.

His own skin was as worn off and shiny gray as the mule's. After the rubdown the mule wandered off. Like the old man, it paid no attention to Solo.

The old man walked to the door of the house but did not go inside. The door was broken off its hinges and rested against the side of the house. The old man sat on the open sill of the doorway. He stretched his legs out on the dirt and pulled something small and shiny out of a pocket of his overalls. He sat there a long while, holding it in his fist as the darkness closed on him.

Solo crossed his legs and sat in the dust of the old man's yard. He rubbed his hand over his head. He felt a mat of warm dusty hair. The dog had run off and he waited alone with the old man. He gave no sign of going away.

At last the old man opened his fist and revealed the small mouth harp that lay in his palm. He brought it up to his lips. The little harp, wrapped up in both old hands, began to sing.

Solo sat enchanted. He forgot his newly hungry belly. He forgot his little sailing ship. He forgot everything but the little harp hiding in the old man's hands. It became very dark, still he watched the solitary notes slip through the old man's fingers.

Finally, because of what the old man had made of him, Solo began to tremble with hunger and exhaustion. The old man knew. In one

motion he slid the harp into a pocket and disappeared through the doorway. Inside, in the dark, he lit the kerosene lamp. The mantles threw off a yellow flickering light that leaped through the doorway toward Solo.

Then the old man was standing in the flames of light. "Boy. You there, boy?" he said.

Solo jumped to his feet. "Yes sir," he said.

"Step inside boy. You can sleep the night here."

SOLO stepped across the slab of wood that separated the inside from the outside. The lantern was hissing steadily. The floor was the same red dirt that lay out in the yard. The old man set two bowls on a table. They sat together at the table and ate cold red beans.

In the light of the lamp Solo watched the old man. The old man's eyes were deep and black as caves. They reflected no light. The things that went into them never came out again.

The old man scraped some beans into a dish and put them outside the door. Then he crossed the room to his cot. He sat down but his hands were restless.

Solo's own hands were restless and he stuck them into the pockets of his overalls. The old man shrugged, muttered to himself and dipped Solo a cup of water. Something tapped under his hand on the table. When he drew away

his hand the little harp remained.

"Go on, boy. It's burning a hole in my pocket with you watching me all the time," he said.

Solo was shocked at how much his hands wanted to hold on to the harp. He could see what it looked like for the first time. The wooden struts that separated the notes were still wet and swollen from the old man's playing. The bright metal cover was stamped with the words: M. HOHNER. MARINE BAND. Solo closed his hand around it but his fist was not big enough to cover it like the old man's.

Solo grinned. "It's hot," he said.

"Yes sir," the old man said. "Burned a hole right in my pocket." Solemnly he pulled out his pocket and showed Solo the hole.

So Solo sat that night in the old man's house, playing the old man's songs. He knew it was a mistake. It was a mistake, for all the times in his sailing ship the old man's songs would not be with him. But his hands held the little harp the way he had seen the old man hold it and he watched the solitary notes slip through his own fingers and he forgot that it was a mistake.

The old man had taken the blanket off the cot and spread it on the floor for Solo. When Solo finished the old man was lying on the cot, his face to the ceiling. The old man said nothing and Solo left the harp on the table. He lay down on the blanket in his overalls, his face to the ceiling.

There was only the sound of the lantern and then the old man spoke. "You is fine, boy," he said. "You is fine."

The old man screwed down the lantern. The room began to grow closer and dimmer and then it was black. In the dark, Solo stared at the ghosts of what had been.

He heard the old man moving to the blanket. He felt the edges of the harp as it was pressed into his palm.

"This is a no-good harp. Blown-out. Rusted. No good. You have it, boy."

Solo's lips were aching and raw from scraping across the little blocks of wood. He could not talk.

The old man said, "I get me a brand new one. Two dollars. Brand new."

It was very dark. Through the open door clean damp air moved over Solo and he began to cry. He cried until he fell asleep, without knowing if it was himself crying, or the old man's boy.

ONCE, long before the sun came up, Solo left the house and ran off into the hills. The yellow dog had returned, prancing and excited with the urge for love. The yellow dog pressed his shoulder against Solo's and they ran together, Solo running with wild panther-green eyes, running as the yellow dog's mate.

In the early morning the old man woke first. The early light that

entered the house was gray and cool and wet. Solo lay curled on the blanket, still sleeping, as the old man moved about. Once the old man looked at his face, at the lids of his eyes, which were closed and secret.

Softly he started a small fire in the wood stove with newspaper and kindling. He filled a pan with water and set it on the stove for the oatmeal. While he was doing this his hand sometimes slipped in and out of his pocket. He himself did not eat. He watched the boy sleeping and then he went out to catch the mule.

The dusty red light on his skin woke Solo. He stood in the doorway and watched the sun come up. The yard was empty. The wagon was gone. Because there was no one to see him he was very pale, the color of the sun. He stood quietly in the doorway as the first heat of the day began to roll up from the earth.

The old man had placed a clean bowl on the table for him. A pan of warm oatmeal sat on top of the wood stove. Solo crossed the room to the blanket where he had slept. He picked up the harp and held it tightly in one fist.

He sat on the old man's cot until early afternoon. The old man's shiny gift stayed closed in his fist. The little harp was cold and strange. He did not look at it or bring it to his lips. At last he went to the table, did what he had to do and left the gift he had to give.

In the evening the old man returned. He did not look for the boy. The dog stayed close by him while he rubbed down the mule. He wiped his hands on his pants. Against his will his hands slipped in and out of the pockets of his overalls.

He wandered to the house without purpose. He got the lantern going and pumped it to a fierce white brightness. The clean bowl was still there on the table. The boy had left no mark in his house.

Then he saw that there was something else on the table. It was the little mouth harp, and against the harp rested a small chrome-green egg. The shell was of a color he had never seen before and he gently rolled it in his palm. The egg seemed to leap from within with green fire.

The second time that day the old man built a fire in the wood stove. He placed the egg in the center of the bowl on the table. The fiery green egg lay in the bowl, solitary as a panther's eye. Inside the egg lay the universe.

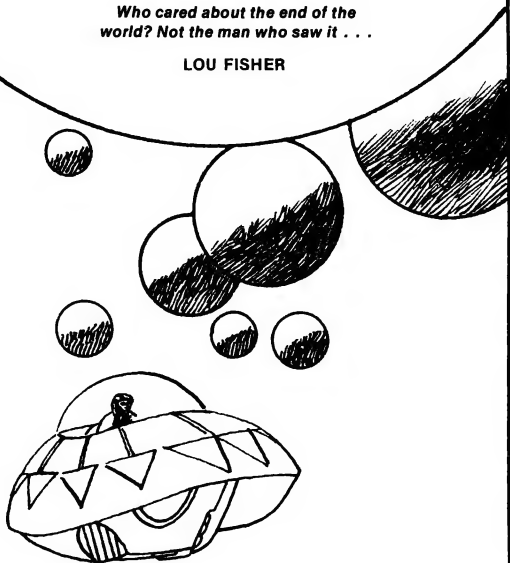
The old man took the egg and broke it on the edge of an iron pan. It cooked quickly and he ate his first food of the day.

After a while the old man took the harp from the table and sat in the shadow of the doorway. He played across the black hills and black sky. His old hands were sweating with a need for the boy to hear him. ★

OUTFIELDER

*Who cared about the end of the
world? Not the man who saw it . . .*

LOU FISHER



THE rainbow went out of his head and of course he was left colorless. But Led Wyatt had been in this situation before. It didn't matter that now he looked a lot like the drab world outside the time cruiser, with winter clouds in his hair and a leftover gleam in his eyes. It didn't matter. He could still feel the big play coming up—a tired thrill that was churning in his brain. Last of the orbits, planet loaded, score untied.

Belt one outa here, babe.

"Bullshit!" Wyatt said to the transmitter that was embedded in his wisdom tooth, the one on the lower left side.

"You got a problem, Wyatt?" A voice in his ears, blunt and slightly time-distorted, belonging to one of the guys he'd never seen who coached the time shot from back at the monitor and the computer and the St. Louis base. "Everything looks green-and-go here on the board."

Wyatt instinctively checked himself (which included the cruiser) for feeling and function. He agreed with green-and-go. Electronically, he agreed. But he wished he could spit.

He said, "This is a bum trip."

"A what?"

"A bum trip."

"Is that *bum*? B-U-M?"

"Yeah. What the hell difference—"

"Hold on, Wyatt."

The way he held on was with a weary sigh of disbelief. He knew

what they were doing. They were getting a definition from the computer. When it came a moment later he tried to be amused, but there was no place for a laugh in the tired anger of his darkening mood.

"*Bum trip* is an old expression from the nineteen-sixties. It means a no-good reaction to the ingestion of drugs."

"How about a no-good reaction to a lousy assignment?"

"No good."

"Screw you," said Wyatt.

Wanting more stretch, he adjusted his position. Around him the padded cocoon reflowed to compensate for his moves. Then the cruiser shifted slightly to cover the changes in the cocoon. Wyatt felt it all happen—it was nothing new as far as he was concerned. If he had a superdollar for every time he'd been attached, for every time he'd come black-and-white to the end of the world, for every time he'd been expected to save the remnants of Earth & Moon, and for every time he'd actually done it . . . Well, what could he do with the money anyway? Buy a beach house for his old age? Uh-uh. There were no more beach houses (no beaches), no more log cabins (no logs), no more grass shacks (no grass), and all the money not left in the world couldn't even buy him a 40 x 40 lot in the retirement of Sun City (the sun itself, rarely visible, a burning globe from way back when).

"Can you guys see the sun today?" he wanted to know.

"Haven't looked," was the reply.

"What's the forecast?"

"Five per cent chance."

"Big deal," said Wyatt, mulling it over.

Sunshine. Galactic League. Soaking it up.

Three seasons of roving in the outfield, and best of all were the days when they could roll back the dome and be touched by the fine heat of the sun. A little sweat, a summer shadow, chasing with him back to the fence.

Not very often, days like that. Then not at all. Earth & Moon, having little left of anything, was cut out of the Galactic League. The franchise moved. Led Wyatt didn't—his unique talents had already been recruited by the new government project in St. Louis.

The new project was now a wornout bitch.

Bitterly Wyatt shook himself out of the sunny day and into the bleak mist of the future.

Form and substance, he was built into his cruiser and scurrying forward through time to the place where it all ended. But who really cared? There were enough living worlds to handle all of the known population to the tenth power. There was no need for Earth & Moon. Saving Earth & Moon over and over and over again was like washing out rags. Hardly worth the effort.

"**Y**EAH, I'm still alive," Wyatt reported in a voice that for him was a whisper. "The reason I'm not talking is because I've got nothing to tell you."

"Are you almost there?" persisted the St. Louis base.

"How the hell do I know? The color's been gone for about five centuries, but sometimes the whole business just drags on and on."

"We figured you'd be there already."

"Well, junk the figures and listen to me. I'll know it when I see it. Or better yet, get your tail out here and see if you can do it yourself."

"Time-travelers—" When the statement began, Wyatt could tell it was the lead-in to the ungolden rule that was the scourge of his life. He wanted to shut off his ears. "—are born, not made."

"Funny how they're not born too often," Wyatt replied. "I've got a feeling that I've been shafted."

"You've been what?"

"Shafted!"

"Hold on, Wyatt." Quickly to the computer and quickly back. "A *shaft* is the long handle of a spear."

"All right, then I've been spear-ed."

"Do you mean that you've been treated badly?"

"Something like that."

"It's not true, Wyatt. There are ten known time-travelers and you're all highly paid. You were the first. Now you're the oldest. The problem

is that you're too old. But we only call on you when the other nine are busy—or when we need your specialty."

Instinctively Wyatt checked the console, the lights, the screen, his fingers, and took a look outside. The cold gray stream of swiftly passing time made him shiver, but a sixth sense told him that everything was quiet and that he was still far from the approaching threat of nonexistence.

He said, "You're right. I'm too old."

"Well, you refuse to train any of the others. You won't even talk to them. As soon as you come back from a trip you go off with that woman."

"Not any more."

"Oh, broke up, huh? Well, at your age there's not much left to offer a woman."

Wyatt ran his tongue over dry lips.

He said, "She died, you bastard."

For a few seconds the base fell silent. Even measured by the depths of the usual sarcasm, it wasn't much of a pause. It didn't reflect shock; it didn't give concern; it didn't show respect. Everybody dies, especially on Earth & Moon.

"Sorry," the answer came, floating in metallic sobriety from one ear to the other.

Wyatt closed his eyes.

Sandra. Sandy. Honey.

Remembering her was like listening to the scratches at the end of a tape. The images were only of those final days . . . She would squeeze his hand when she had the strength, smile tiredly when she felt his pity. ("Mmmm, Led, this warms me all the way through. Once I had a dog called Brandy—it's a nice name for a dog.") But breathing emphysematously, but coughing blood, but growing thinner, but dreaming nightmares, but never fighting to drag it out, only dying with a scrap of dignity. ("No matter how far out you go in time, you'll always be able to call me yours—always.") Few women were left on Earth & Moon and none like her. She was his last woman.

It was always the last of something. That was the business he was in, Wyatt thought. It was up to him to preplan the complete disposal of whatever items could cause the end of the world. And it was true that he was the expert—the only expert. He and the time cruiser were a single working unit that could sense the danger point within a year, zero in on it and analyze the conditions that brought it on. Many, many trips so far and never had he failed to find the end and extend it. The real expertise came in figuring out how, in determining the cause and effect and in going back to the present to change the cause.

The key to the trick was to catch it *before* the end (otherwise—blooey). If it weren't for that, one of

the others might be able to do it. But to sense the situation, to find the right answer, all before it was too late—that was deep in the brain of Led Wyatt.

A great natural hitter, babe.

“QUIT laughing,” Wyatt muttered.

“I’m just remembering some of your weirdies.”

“Which ones?”

“Most of them. The bottles, for instance.”

Wyatt winced. That wasn’t from a recent trip, that was from one of the first. All bottles had to go. All glass bottles (weren’t many left anyway) and all plastic bottles (just a few million), with no exceptions. Bury them, sink them, send them to the other planets.

All right. So whiskey now came in squeezebags. And everything else was either piped in or freeze-dried. After all, it only affected some ten thousand people, the poor unlucky bastards who were assigned to keep Earth & Moon running.

“Big deal,” Wyatt said. “What are you, a bottle baby?”

Giggling in his ears like a clown in heat, the St. Louis base could only come up with a flicker of steadiness in the voice that carried on the debate. “You’ve got to admit that you pick out some strange disposals.”

“I don’t pick them out. God picks them out—somebody picks them out. I just find them.”

More laughing. “God didn’t pick out bowling trophies.”

“For chrissakes, that was—”

“Or pinochle cards. How about that, Wyatt? You think God ever played pinochle?”

“You know damn well why we had to get rid of the cards,” Wyatt said. “Those jerks who were supposed to be monitoring the atomic stockpile were so wrapped up in their pinochle game that they didn’t see the warning light.”

“That’s your story.”

“You must be dumb enough to believe it,” Wyatt replied. “You keep sending me out.”

“Well, whenever we get a signal . . . You’ll see, one of these times we’ll take a chance on a younger guy.”

“Go ahead. And he’ll keep telling you what I keep telling you—get rid of the stockpile.” Wyatt shook his head with the nearest approach to helplessness that he’d ever been able to achieve—and even though he knew that no one could see him he quickly turned his mien into a scowl that deepened and darkened the lines in his face. With a routine glance at the panel lights he continued his argument. “Most of the trouble comes up at the nuclear warehouse. If you’re going to keep all those megatons of fissionable materials, then you’ve got to expect to get ignition.”

“Not if you keep stopping it. You know we’ve got to have the stuff.

It's energy for all the worlds—heat, fuel, defense, power—for *all* the worlds, Wyatt."

"Doesn't do much for Earth & Moon except make us into a match-stick," he answered.

"Come off it, Wyatt." The St. Louis base sounded a bit more serious. "We need the stockpile more than anyone else. It's all we've got. If Earth & Moon wasn't a warehouse it'd be abandoned. One function, dangerous as hell—that's what keeps this place going."

"Then don't go getting jacked up about the pinochle cards," Wyatt told him.

Or anything else, he thought, picturing the list. Rifles. Ballpoint pens, monkeys, and self-help psychology books. Easter Sunday, digital thermometers, circuses, sleeping pills, aluminum siding, stand-up desks, prostitutes, small airplanes, diamond mines in South Africa, glue, extension cords, bourbon, snow shovels (good riddance), parrots, tennis shoes, cigarettes—no, that was for cancer. He was getting mixed up with the cancer list: cigarettes, mustard, cranberries, charcoal, deodorants—no end to that list either—and then there was the heart list and the ecology list (too late) and the morality list and some day the list list.

Unfortunately, time travel—

Wyatt leaned forward in the cruiser, only slightly, which was as far as he could go because he was part of it, watching the traces of a

gray fog rolling in around him.

—was still permitted.

The fog was a sign for sure. He sniffed, trying to get the feel of it. Not yet. Not quite yet.

The cruiser bumped along in some unappreciated turbulence. It was shaking up his stomach. That was another thing that had started recently: a stomach full of belching gas and narrow shooting pains, now and then, even through time, even though he was eating more mildly and drinking much less. He thought that maybe it was because he'd given up women. He'd heard that somewhere. Or read it. Sex and the stomach, sex and the brain, sex and the nerves. A lot could happen to a guy who wasn't getting it any more.

WYATT cursed too loudly. The transmitter in his tooth had once been perfectly installed, but lately at high volume it caused vibrations to reach down to his toes; and in this exuberant case they were bouncing back to cause a secondary shock and limit his choice of strong words to just one. Fiercely, but more quietly, he added, "Don't you guys have nothing better to do?"

"Just staying tuned in, in case you need any help." The voice in his ears was getting lower in tone, as if someone were turning his nose clockwise to bass. Actually, it was the increasing length of time-dis-

tance that was stretching the soundwaves.

"How much time has passed since I left?" Wyatt asked.

"You mean back here?"

"Yeah, you nuts—where do you think I mean?"

There was a recognizable pause, obviously for the higher math of computer calculations. All they had to do was look at a wristwatch, Wyatt thought—but hell, no, that was too easy. He gnashed his teeth. He hoped it generated eons of static.

"Two hours, fourteen minutes," came the reply.

"Then I should be there already," Wyatt said, shifting with the contour pads that held his body and automatically moved him into regulated positions. "With all the goddamn practice you've had, you'd think that once in a while you could come close to pinpointing it."

"That's your trick, Wyatt."

"But, hell, you know it happened. Tell me when."

"We told you."

"Bull. You didn't tell me, you *sent* me. With what you told me I couldn't find the day after tomorrow or an open bedroom at Mama Flo's. Maybe I could stand and hit the fast ball without knowing where it would be, because I could afford to miss it; but the end of Earth & Moon is faster and wilder and noisier and if it happens just once—"

"It won't. You're on the right

track and we put you there. You couldn't get anywhere without the St. Louis base."

"Don't I know it," Wyatt grumbled, mostly to himself.

"What did you say?"

"I said *blow it*." He cut himself short, realizing that the conversation was costing him full awareness of the cruiser as it (he) stoked the years toward a roaring fire that he (it) had to snuff out.

But the base was still explaining.

"Listen, Wyatt, we're doing the best we can. It's like tuning in an FM station. We get it and then it drifts away. We know it's there because we can read it, but it covers a wide spectrum of the dial. Just keep going—you'll find it."

"Sure," said Wyatt.

He let out a breath that fluttered his lips. Was anything going on? The dials in front of him, a fan-shaped set of twelve, were spinning and changing so rapidly that they were meaningful only to the onboard computer and even that was subject to doubt. And all the lights on the console—if one could visualize a logical console with no physical shape being everywhere in the cruiser—were flashing intermittently, with one vital exception: a small bank of parallel lights, near his right hand, was dark and waiting.

At the moment the best clues were outside. The color and the fog. There was no color. There was a lot of fog. A gray slowly turning

black like the dusk of eternity. Sure enough, he was getting close.

In his ears the base said bluntly, "One-point-eight centuries since the last report."

"Shut up," he snapped back.

It was time for concentration. Whatever was happening would soon be in range.

By thinking about it, he activated the screen. It was there like he was there, part of everything—yet in its unique way it was a bay window with a sweeping, zooming, panoramic view of hundreds of kilometers of nuclear storage. It was (he was) out of focus. The blur of the screen was part fog and part the rapid movement of time. There was no reason to tune in sharply until the moment there was something to see.

That moment, Wyatt knew, was about to ring in.

His thoughts moved into the focus mode. On a separate level, the chill that ran icily from his head to his spine had nothing to do with electrical impulses or cruiser temperature—it was the ache in the bones, it was the trick knee, it was the dry socket in the shoulder, it was the corns on the bottom of the feet, it was the skip in the heartbeat—it was, of course, the inner signal that he'd been waiting for.

Good eye, baby . . .

"I'LL LET you know," Wyatt said flatly.

"But you've got the screen on."

The St. Louis base, in a stretched out, far off drawl, was showing signs of excitement.

"So what?"

"You must be there, Wyatt."

"I'll let you know."

"Are you starting to time-focus?"

"Pretty soon." Wyatt's mind toyed with the control without moving it.

"What do you see?"

"Nothing yet. Quit yelling in my ears."

But he saw the small bank of lights, dormant throughout the trip, start to flicker like wind-blown candles—and even if he hadn't seen it from the corner of an eye, he would have sensed the same thing. There was an absolute stillness that involved the whole Earth & Moon. It seemed as if that point in time were without life or breath or sound. And yet all of that hush was only in his mind, with a meaning that reached to the opposite extreme, because somewhere out in the world there was the beginning of violent action and the silence was breaking.

Here again, he thought. The end, the cause—and what would it be?

"C'mon, Wyatt, what's happening?"

"If you would quit bugging me—" he answered, and his eyes were hard.

It would be a gang of teenage tyrants, turned on by the old quad tapes of Carter Lee Cash, storming

the atomic center. Chains and sledges and miniature flamethrowers. And with ancient Nashville boating in their earpieces they smash through the gates and tear out the equipment and destroy the controls and gleefully brew a radioactive turmoil that becomes the beginning spark of a doomsday explosion.

Cause: country music. Eliminate guitars.

"Are you getting a signal?"

"Yeah, I think so," Wyatt said. It would be the host computer, which somebody forgot to reprogram for February 29th, overactivating the fusionable stockpile. As the confused cycle of the calendar-timer starts correcting in the wrong direction, the sensors read the feedback as if it were midsummer; the automatic removal-and-replacement procedure is unexpected at that time and so is the mushroom cloud.

Cause: an extra day. Eliminate leap years.

"God almighty, Wyatt, we've got it ourselves. You're there! You're there!"

The flickering lights were now a frightening staccato of red embers. Wyatt looked up at the screen, mildly surprised to find it still blurred. His nerve ends tightened on the focusing knob. It would be a freight elevator, breaking loose of its cables, plunging through the leadsteel skin of the cooling tower and rupturing the lines that carry

in the water and carry out the steam. The vats of charged rods grow warmer and warmer, but they never get as hot as the blast that follows.

Cause: height. Rebuild everything on one floor.

"Have you got it, Wyatt?" the St. Louis base demanded to know. "Should we bring you back now?"

"Wait a minute," Wyatt said.

"You don't have a minute! Do you know how long a minute is out there? In a minute the whole damned thing—"

"**W**ILL be shot to hell," Wyatt said after a while, but there was only peace in his ears.

He had passed it by—gone right on ahead. He thought he caught sight of the sudden flash and a quick sniff of burned Earth & Moon—it was a fuzzy memory almost as soon as it happened. And now, inside the cruiser, he felt the strange sensation of being past the point in time where everything ended. There was no way back. Neither, to his amazement, was there any kind of sudden stop. The fog had changed to utter blackness, but Led Wyatt could still sense the forward movement. He was shooting through time, and it was infinite, and he would go on forever and ever and ever . . . Or at least until the ship ran out of . . .

A time cruiser, he remembered darkly, runs out of nothing.

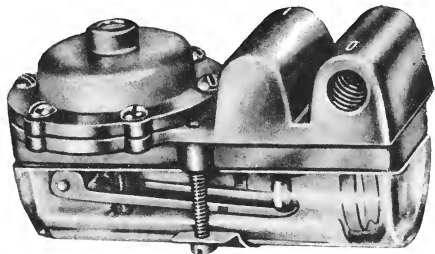
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Theodore Sturgeon

WELL, I told you—we're becoming, if not respectable, then the subjects (perhaps I should say targets) of respectable assessments from the bigdomes and the heavyweights. Here is *New Worlds for Old*, by David Ketterer (\$2.95, indexed, 347 pages, a Doubleday Anchor paperback.) Subtitled: The Apocalyptic Imagination, Science Fiction, and American Literature, this chunky tome is one of a whole library annex of forthcoming new books about the sf phenomenon.

David Ketterer operates out of Montreal, where he is a Professor of English at Concordia University. His book is the product of an immense amount of research and an irresistible determination to apply the term "apocalyptic" to the literature of speculation. He writes a determined and unleavened prose, does his footnotes and attributions impeccably, and is a perfect example—a most rarefied and refined example—of what I am

irresistibly determined to call The Labeler.

I cannot knock The Labeler—he performs many valuable functions and is the product of the evolution of rational thinking, the well-honed weapon against fuzziness and against blind faith. As he approaches his work each morning he makes his obeisance to the commandment: Define Your Terms. His conviction is that nothing can be handled, can be understood, can be placed in an ideational sequence, unless every part of the specimen be described and defined and every term used in this definition be in turn defined—until you get prose like this:

... I have defined as apocalyptic any work of fiction concerned with presenting a radically different world or version of reality that exists in a credible relationship with the world or reality verified by

empiricism and common experience—the world or reality the author may assume his reader to bring to a reading of his work. My use of the adjective “credible” rather than the narrower qualifier “rational” is based on the assumption that an act of faith and an act of reason may be equally and inextricably involved in the acceptance of any unseen world that is, in some sense, concordant with the known world.

The end product is, inevitably, the use of a great many more words and the loss of that great guiding principle that basics are simple and that complicated things, though they may be poignant and passionate and shakingly important, are by their very nature not basic. The passion for microscopic precision exemplified in the passage above also implies that the imprecise, the infra-rational, the wordless cry, do not communicate nor exactly define. Bradbury once wrote of fireworks that before you can raise a pointing finger, before you can say, “There!” the thing is gone—and yet, it isn’t gone and you know it isn’t. I had an agent many years ago, for a score of months, and we came to the parting of the ways because he wanted me to sign a contract. The contract ran four pages and had twenty-one clauses. I wanted to be able to say, “You are

my agent”, which seamlessly states that the man had the right to ten per cent of my income. He could never grasp the fact that to surround anyone with a thousand-part palisade creates a structure with a thousand cracks. Scholastics seem sometimes to achieve definition at the expense of statement—so devoted are they to getting the parts in the right boxes that, to readers other than their colleagues, they run the risk of losing the form and texture of the thing analyzed.

Again I say that such work is useful and valuable, admirable and worthy, and I would be the first to concede that it is not mutually exclusive with the intuitive, the “love is when—” type of definition/description. (“Love is when it’s also good to get out of bed, morning-time,” a young lady once told me.) Few phrases have conveyed so much about the work we do here as has “sense of wonder”—and few phrases have bled so badly, lost so much life under the microtome.

Anyway, David Ketterer defines his terms and partitions his thesis with a massive neatness, as:

Science-fiction stories may be roughly grouped into three categories, depending upon the basis of the extrapolation involved. A writer may extrapolate the future consequences of present circumstances, in which case he will probably produce sociological

science fiction within the "utopia"/dystopia range. (Here a footnote citing Brunner's *Zanzibar*.) Secondly, and this is a frequently related category, typified by much of H. G. Wells' work, he may extrapolate the consequences following the modification of an existent condition. (Here a thousand-word footnote on Leiber, William Blake, ecology, Frank Herbert, George R. Stewart, E. A. Poe and the Apocalypse.) This modification, as Kingsley Amis notes, frequently takes the form "of some innovation in science or pseudo-science or pseudo-technology" or "some change or disturbance or local anomaly in physical conditions." (Here a footnote identifying the Amis source and quoting J. O. Bailey on Olaf Stapledon.) Thirdly, the most philosophically oriented science fiction, extrapolating on what we know in the context of our vaster ignorance, comes up with a startling *donnee*, or rationale, that puts humanity in a radically new perspective. In the second and third categories, the element of analogy becomes increasingly evident. Needless to say, the three categories overlap, and distinction depends upon emphasis.

ISAAC ASIMOV says: "There are basically three kinds of science fiction, and you may find any or all in a given story: 'what if—', 'if only—', and 'if this goes on.'"

Which, I think, makes my point, which is not that one or the other form is preferable, but that we must not let the pressure toward self-complicating precision obscure the coexistent art of scooping it all up in one cupped hand.

To do Ketterer full justice, I shall describe the structure and content of his book: PART ONE, *New Worlds for Old*: The Apocalyptic Imagination, Science Fiction, and American Literature. Science Fiction. A Prophecy of America, the Moon, and Mars. PART TWO, *Other Worlds*. Edgar Allan Poe and the Visionary Tradition of Science Fiction. *The Left Hand of Darkness*: Ursula K. Le Guin's Archetypical "Winter-Journey." Other Worlds in Space and Time. Utopian Fantasy as Millennial Motive and Science-fictional Motive. The Means and Ends of Science Fiction. PART THREE, *The Present World in Other Terms*. Human, More or Less. The Transformed World of Charles Brockden Brown's *Wieland*. *Solaris* and the Illegitimate Suns of Science Fiction. (Ouch. TS.) It's a Flat World! Epoch, Eclipse and Apocalypse: Special Effects in *A Connecticut Yankee*. New Dimensions in Time, Space, and Literature. Somebody up There: Melville's *The Confi-*

dence Man and the Fiction of Science. Vonnegut's *Spiral Siren Call: From Dresden's Lunar Vistas to Tralfamadore*. And that meticulous Index.

Clearly, then, the book is informative. Provocative, too. I would like to be in a room with David Ketterer, who is quite certain that sf is a uniquely American phenomenon, and Franz Rottensteiner, who got up a whole anthology (*View From Another Shore*) to show that Europe has its own distinctive variety. I should like to hear a debate between him and Dr. Tom Clareson of the Science Fiction Research Association; I should like the opinions of Disch and Zelazny on his discoveries of metaphor in Le Guin; I should like to see him in the middle of a table with George Alec Effinger on one end and Robert Heinlein at the other.

UNDER no circumstances must you miss *Commune 2000 A.D.*, by Mack Reynolds (Bantam, 95¢). Mack Reynolds, one of the best slam-bang storytellers in any field, has long practiced the "if this goes on" variety of science fiction. He is a great deal more than a historically minded, socially conscious extrapolator; he is a guy who genuinely gives a damn about our species and what it has done, what it is doing to itself. He has in this remarkable novel evolved the com-

mune, the alternative life style, and the Guaranteed Annual Income (which President Nixon—knowing, I think, that it hadn't a chance in the world to pass—dared to suggest a few years ago) and manages to present the mosaic of a world almost completely automated and computerized, in which less than 10% of the people have jobs. Without forcing the gadgetry down our throats, he shows what it would be like to live through a day in a world in which money had disappeared, in which personal property has, for the bulk of the population, no meaning, because all goods and services of equal quality are available to everyone. It sounds like heaven and is much like those slick-paper magazine prophecies of life-in-2000, when you dial the market for your food, clothes, lunch or whatever, put your I.D. against a sensitized plate and have everything delivered almost before you can switch off the machine. There's a General Data Bank you can call on for information about anything or anybody anywhere and each individual is reachable by a small portable TV phone wherever he may be.

Then there are the communes, populated by people who share a theme, if not a dream: singles only, for example; artists (this one's mobile—five hundred or more mobile homes roaming the countryside); nudists; Greek revivalists with an emphasis on sports, drug

culture and so on. The protagonist, a PhD in ethnology thirsting for his next degree (it's called "academician") is told to write his dissertation on the communes. After visiting a few he discovers that he is being used as a spy. Take it from there. Reynolds takes it through perplexing mystery and wild adventure (some of it most joyfully sexual) to a conclusion which—my only objection to the book—is too abruptly, almost naively, revealed. But all of it, as good social science fiction should, turns a blue-white light on what we do and are, right now.

TOM SCORTIA and Chelsea Quinn Yarbro have come up with a most original anthology idea. Get a basic story line, hand it to two writers, one male, one female, keeping them isolated from one another, and see whether there is any real difference in their treatments. The editors did this with five carefully selected couples, and themselves each wrote a story. The couples: Joe Gores and Miriam Allen de Ford; Pamela Sargent and Michael Kurland; Sydney J. Van Scyoc and Reginald Bretnor; George Zebrowski and Tamsin Ashe; Chelsea Quinn Yarbro and Harlan Ellison; Willo Davis Roberts and Thomas N. Scortia. The editors have appended the six themes and I find the whole thing fascinating. I have long been certain that two writers writing the

same story can run them back to back in the same anthology, and sometimes they will be so drastically different that the reader will never know. That doesn't quite happen here, but the differences between each two stories, built on the same theme, are surprising. In my opinion the experiment demonstrates that there is no significant difference between the males and the females in approach or texture. There are some very good yarns here, some so-so, none bad—and these comments apply evenly between the sexes. "*Vive Laquelle Difference?*" ask the editors in their introduction—and I echo, what difference indeed? A good writer is a good writer, fall the chromosomes where they may. The book's called *Two Views of Wonder* (Ballantine \$1.25).

GOT a starchy letter from a lady who objected to my paragraph a few issues ago about how Wina and I are forcing a tiny garden and raising rabbits and making our own clothes and furniture and so on, all in order to steer our heads toward survival. Had no place in a review column, she said. I concede the point, modifying it only this much: science fiction is happening to society—and you may apply that on many levels.

Your editor concedes nothing—Ted's incursion into what he is and likes was by invitation—ed.)

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CONCLUSION

WHAT HAS GONE BEFORE

6

5

1

8

4

When the skelter, an instant and inexpensive means of transportation, first made its advent on Earth it was hailed as a major blessing. It made all men neighbors—and women, too—though they might live continents apart. A man could finally choose to live in a south-sea island paradise and commute daily to his work in any of the great commercial centers of his teeming and wealthy planet. Friends and relatives separated by vast distances who had resigned themselves never to seeing each other again were suddenly able to meet whenever and as often as they wished.

Yet within a few short years two thirds of the Earth's population was destroyed and the planet was laid waste. Nations and governments vanished; private lives were ruined. For the skelter also gave access to any burglar to any household and made possible the most terrible wars history has known. Troops and weaponry could be moved with lightning speed and precision to any part of the globe—famines and plagues followed—until the skelter was finally brought under control through the invention of the privateer, a device that prevented all unauthorized use of the skelter. The inventor of the privateer, Chaim Aleuker, instantly became the world's wealthiest man and around him gathered a group of intellectual elite, who quietly rule what is left of the world, forsaking, even damning, all that is past.

In this milieu also moves Hans Dykstra, a recuperator, whose job consists of sifting through the ruins of Earth's civilization to discover anything that might still be salvaged and made useful. Hans, however, has an illegal hobby—he has not rejected the past; rather, he wants to restore it. In this activity he has an influential partner, a blind but wealthy Arab, Mustapha Sharif, renowned as a poet, who shares Hans's infatuation with what has gone before. Their alliance is an uneasy one—both men know that if their activities are discovered they will be ruined.

When Chaim Aleuker, feeling that his governing group of intellectuals needs new brainpower, broadcasts to all who wish to come invitations to a treasure-hunt party—if they can solve a maze of clues scattered around the globe—Mustapha is not interested. Hans, however, after a fight with his wife, Dany, feels challenged to prove his intellectual superiority and enters the game. To his own surprise, he wins, becomes the first contestant to solve Aleuker's IQ test, and finds himself being lionized by a gathering of Earth's finest and most influential minds at Aleuker's palatial New Zealand residence.

He is enjoying the party, meets a lovely seventeen-year-old innocent, Anneliese Schenker, and is totally smitten by her beauty, when disaster strikes. The festivities are shattered by a Maori attack.

Hans grabs Anneliese, rushes her into the nearest skelter, dials for home. An instant later he is there—

and discovers his wife dead, a suicide.

Interface K

*Incomprehensibly
Our ancestors preferred
Putrefaction over evolution.
They were embalmed
Wrapped in sheets of lead
Or stored in coffins in a vault.
When my time comes
I want to grow into a stalk.
A leaf, a flower and an ear of corn
—Mustapha Sharif*

HIS reaction was pure reflex, without calculation. His left hand flew up to cover Anneliese's eyes while his right stabbed another code into the skelter.

Between one breath and the next they were bitterly cold.

"Error—it's transmission error. Sometimes happens—nothing is perfect. I think I must have drunk too much, terribly sorry—what a horrible sight to have run across by accident!" Gabbling. He heard her moan a little, but she was too overcome to form words.

At least, though, here in Sweden it was briefly light, low sun glinting on the snow ridges beyond the windows. And the Erikssons' corpses had safely gone to be incinerated. He could take her by the hand and lead her passive into the living zone, inventing frantic reasons for

the state of the house.

Her teeth chattered, although the weak sunlight had raised the temperature behind these huge windows above the freezing point. He continued with his soothing flow of talk.

"Get a fire going in a second. Don't worry—I'll take care of everything—"

On the stone hearth, logs half-charred, ancient ash. He thought of the correspondence paper in the study and ran for it, leaving her to stare wide-eyed and amazed at the dust. He collected the entire stack and came back, carrying a sort of torch. Damp, the paper burned poorly, but it did burn. *Goodbye the sheet to be featured in my secret files . . .* In a box beside the fireplace he saw kindling that had rotted but not crumbled.

His hands trembled. He hadn't built a fire in twenty years.

"I'll turn on the heat in a moment," he promised. "I don't come here often, you see. People don't stay in one spot these days—I imagine Aleuker told you—we like to follow the warmer weather because it's so easy and quick to travel. In winter, of course, one leaves a place like this empty until the spring and heads for a warmer climate."

She was shaking, shaking. Near the fireplace stood a low stool—she groped her way to it and sat down. The kindling caught and flames leaped high and yellow. (In imagination he could hear screams. Had

the Maori extremists trapped many of his fellow guests in the pyre of Aleuker's home? He shut off that line of thought.)

OTHER questions bombarded him—how to conceal the house's lack of electricity? With relief he realized: *She isn't used to power, but I ought not to have mentioned turning on the heat. The oil may be circulated by an electric pump . . .*

"Are there still policemen in your world?" Anneliese asked suddenly.

What? Hunkered down, tending the fire, he swiveled to face her.

"You should tell the police about that dead woman," she went on.

"How can I?" The lie was instantly tailored. "I told you, we were taken there by a transmission error. Probably my fault, as I said, for having drunk too much, but even so— No, I might try a million skelter codes and never find my way back to the same place. I don't even know what country we were in."

Numbed by the cold, his fingers ached. He spread them at the fire-side to rescue sensation. The chill referred to ghastly experiences in his childhood. Was it really so short a time ago—could the world really have improved so much since he was a ragged and half-starved waif?

"You don't even know what country?" she repeated dully after a pause.

"No, of course not, The skelter

can take you anywhere in next to no time."

She pondered that for a while, eventually gave a nod and went on staring at the flames.

"Sorry about the mess everywhere," he ventured. "As I said, I don't come here very often."

"Then why did you bring us here now?"

"Uh—" Yes, why? Quickly, quickly, a convincing reason despite the fog of alcohol. "Well, obviously we had to get away from Aleuker's place, didn't we? And what's more—" gravely, with an air of considerateness— "you haven't had much chance to adapt to our modern world, according to what you told me. You've been overwhelmed by new ideas and new habits ever since Aleuker took you to New Zealand—"

"New Zealand?" A cry. She jolted around on her stool.

"Why—yes! Didn't you even know where you were?"

Dumbly she shook her head. And forced out at length: "I thought maybe—the United States?"

The horizons of another world, Hans thought. With the concept came a sense of fresh confidence. The image of Dany's corpse, so brilliantly red in his imagination, was a warning that the universe was poised to come crashing on his head. There was no real sense of loss involved in his memory of her—he had never actually loved

his wife, just wanted to have *a wife* in an age when so many men were resigned to bachelorhood.

But if no one apart from this ignorant girl so far knew that he had seen Dany dead, it shouldn't be too hard to wriggle out from under the consequences.

The first step must be to mislead her out of understanding what she had seen. He drew a deep breath and rose to his feet.

Excusing himself, he went to inspect the heating system.

BY A minor miracle, it was self-feeding, with a compressed air tank to start the process that required only a dozen firm strokes on a plunger, like an overgrown camping stove. A yellowish smoky flame answered the application of his lighter, turning blue as the burner scorched itself free of dust. When he returned to the living zone the registers were already uttering the first warm air.

Pausing in the doorway, he looked around with a grimace.

"I should apologize. I'd no idea the place would get so filthy in such a short time. It must be very different here, by the way, than where you hail from."

"Where is here?" she asked tremulously.

A brief hesitation. Safe? Well, worth risking to gain her confidence.

"We've come to Sweden."

Her response was a distracted

nod. The gamble had paid off. For her, no doubt, it was a name on an old map, corners ragged from the attentions of termites, lacking referents.

She said, "No, not very different. Also at Festeburg nothing could be left for more than a day or two without becoming very dirty— Is that snow?"

She was gazing at the windows.

"Snow? Yes, of course it is."

"I heard about it. But I never saw any before."

Hans relaxed so violently he almost gasped. It was going to be easier than he had dared to dream to convince this youngster he was telling the truth about Dany. His mind fermented with ideas: leave her here, afraid to use the skelter without a companion, trapped for as long as proved necessary to sort things out. The apartment held no evidence of his illegal trips, not even his darkroom. He could ask Karl Bonetti to confirm that Dany had made scores of suicide threats without putting any of them into practice. He could arrange to have his hallway redecorated so Anneliese wouldn't recognize anything—or better yet, he could move to another country, another continent.

It could all be done in forty-eight hours.

Too bad that he would have to sacrifice the would-have-been star entry in his secret files—but at the very edge of his mind hovered the idea that from now on he might not

be paying so much attention to his hobby.

This girl Anneliese—given the way she'd been brought up she might well be susceptible to the ancient notion that marriage was a woman's only security. What would she desire more than security in this weird, unfamiliar world?

To have a young bride . . . Ho, ho! It had to be a decade or more since a man in his thirties had married a girl of seventeen!

HE TOOK a frenzied grip on himself, aware that he was still a little drunk despite the sobering shock of seeing Aleuker's home attacked and then finding Dany. It was too soon to let his dreams run away with him.

He said, "Anneliese—dear—I think you look tired. Should I prepare a bed for you? There's a room you can sleep in over there."

He pointed toward the child's room, forgetful that he had left its door ajar and the weak sunlight would reveal the toys, books and scattered clothes. She smiled and turned her head and instantly was bewildered.

"You—you are married? You have children?"

Invention, quickly! Something that can't be used against me . . .

His tone was so smooth it astonished him as he replied, "Ah, this is my old family home. You heard that there was—well, what we call the Blowup? And after that

came plagues and epidemics."

A nod. "I don't understand much about what happened—but I was told. Things must have been very terrible."

"Yes, they were. Well, I had a sister. She died. And my parents are also dead. I—ah—I never felt inclined to change anything in this house—if you see what I mean."

"I think I understand."

"But it was a long time ago. It's foolish to live with the dead past. Now that you are here, I have an excuse to clear away what I kept as mementos—no, sit down. Stay by the fire." Pushing her gently, one hand on her soft warm shoulder. Somehow his fingers remained in contact with her and they were looking at each other, eyes directly into eyes.

A stillness grew.

"Poor little girl," Hans said at last. "To be cast adrift in this strange world—it must be awful. Trust me, though, and I'll see that you come to no harm."

Unexpectedly her bright dark eyes spilled tears.

"Thank you, sir," she muttered almost inaudibly.

"Call me Hans."

"Yes—if you don't mind? Yes, it is a fearful new world for me and I know so little about it. I can't even find my way around, let alone make a living for myself. It is very kind of you to show such charity. You will be blessed."

Upon which, with a sudden with-

drawal into herself, she freed her arm from his touch and returned to her stool, gazing once more into the fire.

THE house held many things that might contradict his lies. Personal letters—the rotting food from the deep freeze, clearly stamped for consumption at the latest some forty years ago—irreplaceable newspapers, which he had to do away with because, though ignorant of Swedish, Anneliese might read the dates on them, too.

It hurt him—it agonized him—to see these precious relics destroyed. But he drove himself to the task, mindful of Dany's corpse waiting for him at home.

Other priceless relics of the past he destroyed for fear they might lead Anneliese to ask him later why, if he had been born in Belgium, his "family home" should be in Sweden. The little girl's books, punctiliously signed—her name had been Greta—had to go, though not her clothes, or not all of them, for she had been tall for her age, while Anneliese was slight for hers, so some of them might come in useful. Doubtless at Festeburg with its limited resources, long before the same thing happened in the larger world, one had had to be content with other people's cast-offs . . .

He breathed a vast sigh of relief on discovering that the girl had abandoned her stool for a long sofa and, lying on it, had dozed off.

That made his job far easier.

The deceased master of the house had owned a large wardrobe. He had been taller than Hans and rather fatter, but providentially took the same size in shoes. Warm in musty thick winter garments, Hans was able to trudge outside with those few articles he did not want to leave lying around for Anneliese to inquire about, yet dared not send to the incinerators for fear they would survive the flames and be recognized as antique. Most of these were luxury items, chiefly cosmetic jars and perfume bottles. He could have smashed them, but the noise might have woken Anneliese.

The ground was frozen far too hard for him to dig a hole. For the time being he had to be content with hiding the things in the snow.

Returning, bitterly cold, he found bedding and made up the child's bed for Anneliese—she was short enough to find it tolerable, he judged. Then he carried her from the living zone and tucked her in, removing only her shoes. She barely stirred, so deep was her sleep by now.

His mind was filled with competing emotions—a kind of frustrated tenderness, such as he might feel if he actually were putting to bed his own child, and a cold and calculating plan for the future, a tangled skein of deceit climaxing in arson.

At the edge of hearing lurked

small sounds—trickle, splash . . . What in the world? Oh, of course. A pipe had frost-fractured in the main bathroom. The toilet pan, he found, had been frozen, predictably enough—now a wedge of ice bobbed in it as water dribbled down from the flushing valve.

But the Erikssons had been careful people. It took Hans only minutes to locate a tool kit in a kitchen drawer. After making the repair, crudely but effectively, he inspected all the other piping he could find and concluded that there was no risk of further leaks.

Now, before leaving—what else? Obviously a light for Anneliese if she awoke while he was gone and the short sub-arctic day was over. Festeburg had never accepted electricity, so she would be used to candles. Here were several, wicks damp and fizzing, all colors of the rainbow, meant for *tete-a-tete* dinner parties, not real illumination—but never mind. He set one by the bed, with matches that (he tried one) still struck well after all these years.

That, and a quick note telling her not to worry, that he would be back soon, would have to be that. He dared not delay too long about reporting Dany's death, even though the Maori attack on Aleuker's home would make it extremely improbable that anybody had noted the exact time of his departure from New Zealand. He had a good cover story, too—he would say that

even as he fled he had realized he didn't want to confront Dany after their disagreement, so he had made for the Gozo outlet instead and spent a while debating with himself as to whether he should ask Karl Bonetti to examine her and pronounce on her sanity. Then, having decided against the idea, he had finally made for home to discover . . .

Yes, the claim would carry conviction, but only if he hurried now.

He propped up his note beside the candle and on impulse kissed Anneliese's forehead. She half-smiled in her sleep. As he turned away his heart ached with yearning and delight.

Interface L

It was laid down

That making the hajj to Mecca

Earned much merit for a man.

Someone I know

Now makes the hajj twice a day

It takes about one minute thirty seconds

—Mustapha Sharif

HE WALKED straight past the disgusting ruin of Dany, heading for the phone. He dialed the police emergency code and waited. Sometimes the phones here worked and sometimes they didn't.

This time they worked. A voice said grumpily, "Yes, police."

"Please send somebody here right away," Hans said, his voice

shaking just a little. "My wife—she's dead—"

"What happened?"

"She must have killed herself while I was out. Here, make a note of my skelter code. I'll disconnect the privateer."

Less than two minutes later a uniformed sergeant appeared in the skelter, holding up a portable recorder. He said, "Repeat after me please: I, Hans Dykstra—do of my own free will—consent to the use of my skelter code—by law-enforcement officers—and understand—that on completion of these inquiries—I may require another code confidential from the authorities. Thank you."

He stepped into the hallway, his eyes fixed in dismay on Dany. A moment later another policeman appeared and then after a slightly longer delay a harassed-looking man carrying a medical kit and immediately followed by a photographer.

The second policeman to arrive identified himself as Chief Inspector Vanzetti. He was a portly man with tired eyes, his summer-weight uniform patched with sweat, although it was locally winter.

"Tell me exactly what happened," he invited.

Hans licked his lips. "I—uh—I guess I found her about two or three minutes before I was able to call up. I had to go into the bathroom and vomit. The shock, you understand. And—well, I wasn't

feeling too good in any case. You may have heard Chaim Aleuker held a treasure hunt?"

Vanzetti's eyes widened. "You were at it? Hmm—how come you got away with a whole skin?"

"Did it turn out to be bad?"

"Twelve deaths that we've heard about, and most of his house destroyed— How did you get away?"

Hans felt his cheeks start to burn. He wasn't sorry. A little visible embarrassment would support his story well.

"I hate to admit it, but— Well, you see, I'd been there three hours, maybe four, and I'd drunk a lot and—when the shooting started I just plain ran like hell. I'm not sure, but I think I was probably the first person to think of making for the skelter."

"That's interesting," Vanzetti muttered. He consulted the watch on his wrist: no ordinary watch, as Hans's expert eyes informed him, but a classic Seiko Worldtime, the like of which had not been built since the Blowup. "That means you must have left New Zealand at least an hour and a half ago, doesn't it?"

"I didn't come straight here."

"Why not? And where did you go?"

"I didn't come here because Dany and I had had a row. I'm a photographer in my spare time. She was going on this treasure hunt. She didn't tell me who the host was and I assumed it was one of her abominable friends and

planned to stay home and develop some film I was specially proud of. She barged into my darkroom and ruined the film and I decided—" He hesitated. "I decided to go to the party myself to even things up. Now I'm terribly ashamed of myself. But I swear I never dreamed she might do this—"

He gestured at the corpse, around which the doctor and the photographer were prowling like carrion birds.

"You had no idea at all?" Vanzetti probed.

"She had threatened to kill herself," Hans muttered. "But she'd never tried it. I had consulted a psychiatrist named Karl Bonetti about her and he— Oh, that's where I went. That's why I didn't come straight home. My wife's mental condition had been on my mind during the party and, as I said, I was rather drunk when I left and—well, for no real conscious reason it struck me as a good idea to go to see Bonetti at Gozo. I know the code for the public outlet there nearly as well as I know my own. Dr. Bonetti is an old friend of mine."

"Did you actually see him?"

"No, I wandered around brooding for a while and eventually decided it was worth making one more try to patch up the row. So I came home and— and found her."

"Chief," the sergeant said, "it's suicide. Not a shred of doubt. She used this." He held up a bright

oblong partly smeared with dry blood. "An old-fashioned double-edged razor. She cut her thumb and finger with it while she was slashing her wrists."

Vanzetti nodded. "Doc, do you agree?"

The doctor grunted what might have been an affirmative and went on studying the corpse with instruments from his kit.

"How long since she died, would you say?" Vanzetti probed.

"Oh—not less than three hours, not more than five. I'm just checking to see what she took beforehand: a stimulant pill or two, I imagine, and possibly some liquor, too. Ah, here we are." He straightened, holding up a little glass tube containing some chemical mixture that had turned color at two levels—blue and green respectively.

"Yes, she was both drunk and doped. A mix that could have done awful things to her head."

"You said," Vanzetti went on, turning to Hans again, "you'd consulted Dr. Bonetti about your wife?"

"Ah—yes, more than once. He said her suicide threats were so much noise, an attempt to make me pay more attention to her." Hans hesitated. "It's—uh—it's not much of a secret among our friends that there had been friction between us this past year. I'd better make a clean breast of that. You're bound to be told sooner or later."

"Oh, I don't believe our inquiries

need be very extensive, given what you just heard. Naturally there must be an inquest, but there's no call to worry overmuch about that. It'll be largely a formal matter." Vanzetti shook his head dolefully. "A terrible thing, this. Terrible. Now, about Aleuker's party—who can confirm you were there at the relevant time?"

"Well, Aleuker himself—"

"No, I'm afraid not. He's dead."

"What?"

"He was shot. The first of the dead to be identified. The news had just come in by satellite as I left headquarters. A terrible loss for us all."

Hans folded his hands into fists and stood shaking for a moment until Vanzetti prompted him: "Anybody else?"

"Uh—" Hans forced his hands open again and rubbed his forehead giddily. "Well, Dr. Satamori, Dr. Pech—and I also had a few words with Dr. Ingrid Castelnuovo and—"

"That'll do very well. I shall have to ask for a word of confirmation just for the record, but nothing more."

"All done," the doctor said, putting away his gear. "We can finish the job at the morgue."

"Good, thank you." Vanzetti hesitated. "Mr. Dykstra, would you rather come with us now and make a statement—or wait until you've recovered a bit from the shock?"

"Oh, I'd rather get it out of the way." Hans sighed. "I wouldn't want to try and catch some sleep, the state I'm in. I'd have nightmares—"

EVERYTHING went smoothly, as designed. Make the statement; agree to attend the inquest tomorrow morning; call his headquarters office to say he wouldn't be available for work; hear that Boris Peck had been among the lucky ones who survived the bloodbath at Aleuker's. Pech was in a hospital, but conscious and willing to confirm that Hans had been present.

No least hint from anybody of anything but genuine sympathy with a man who had tragically lost that ultra-precious commodity, a legally married wife.

"And will you go back home now?" Vanzetti asked solicitously. "Or would you rather spend some time elsewhere—with friends perhaps?"

Hans shook his head. "I'd rather be alone. I guess maybe I shall go call on one or two people who knew Dany particularly well, break the news to them personally. If you can't reach me at home, that's what I'll be doing, but I shan't stay away for more than a few hours at a time."

"Oh, it's most unlikely we'll want to contact you," Vanzetti said. "Just as long as you're on time at the inquest. Goodbye for the moment, then."

Hans forced a mechanical smile and headed for the skelter. At its threshold he stopped dead.

"Is something wrong?" Vanzetti called.

"Yes, I just realized something is horribly wrong. It's getting through to me. I felt all numb at first—I guess maybe I threw up my emotions, in a weird kind of way. But I shall have to move house. I mean, if next month, or next year, I suddenly think: I punched this code and there was—was Dany—" He swallowed loudly. "Do you know anything about what turns people into stucks? Because I just got this flash about becoming one myself if I don't move away from Valletta."

"Hmm—yes, I can well believe it," Vanzetti said. "You ought to talk to your friend Dr. Bonetti about that, don't you think?"

"Yes. Yes, you're quite right—and I shall."

But not right now. Not today. Today was for being at Anneliese's side when she awoke, symbol of the stability and reassurance she craved and had not had from Chaim Aleuker.

Also it would be for figuring out where to make his new home, out of all the thousands of places to which the skelter could take him.

With his new wife.

Interface M

It was no cynical creator who bade us

*to water the deserts and feed the
hungry mouths*

*You stood with a loaf and a
bomb in either hand
and kept the loaf and gave the
bomb away*

*You chose to have more and
even drier deserts
and many mouths will not again
taste hunger*

—Mustapha Sharif

DROWSING at last after thinking long and hard about what he had said concerning Aleuker's party, Mustapha awoke to the frantic shout of Ali at his bedroom door.

"Effendi! It is Dr. Satamori who came back! His head is cut and he is bleeding."

Mustapha was instantly wide awake, wondering whether it was time for him to admit that he believed in premonitions. He called out orders for Satamori to receive medical attention and, minutes later, joined him in the Room of Flowers. Satamori lay stretched on a hand-carved couch, eyes closed, face a mask of pain, clothes ragged and smeared with dirt and blood.

"Fred—what happened to you?"

Wincing now and then as a boy armed with a box bearing the sign of the Red Crescent attended to his injuries, Satamori forced out a brief account of the disaster that

had overtaken Aleuker's party. Mustapha hissed in dismay.

"You think Chaim himself is among the dead?"

"I don't think—I know. I saw him killed by a ricocheting slug. It tore him open and spilled his guts on the floor. Like ripping a paper sack of butcher's meat!"

"We have lost, then, a very precious man," Mustapha said heavily.

"Oh, don't strike poses," Satamori snapped. "I know you detested him. You were sure he was always doing absolutely the wrong thing."

"That's untrue," Mustapha said, feeling for and settling himself on a stool he could draw close to the couch. "A man who has once seen the correct thing to do—and has done it—must be regarded differently from those who have never thought of anything new. At any moment he might have done something just as useful as inventing the privateer. Now that chance has vanished forever."

"I'm too sick and tired to bother with your doubletalk." Satamori sighed. "But thank you anyway for taking me in."

"My friend, I am flattered that you came to me. Did you not have the chance to tell others they would be welcome here?"

"No—no chance at all. There was panic. It started immediately the Maoris attacked. In fact—oh, it's ironical in a way—the first person to arrive was the first to turn

and run. I mean, apart from those who were invited to show up ahead of time, like Boris Pech and myself."

"So? You mean you lost all benefit from this treasure hunt? You don't know who it was who first unriddled your clues and found his way to Chaim's house?"

"It was a recuperator named Hans Dykstra, who lives in Valletta, I believe. I was lying flat on the floor along with everybody else because one of the first shots smashed a wall-high window and there was glass flying all over the room. But I turned my head away and that's how I happened to see him rush for the skelter. And not by himself, either. Did you hear about this girl Chaim rescued a while ago from the wilds of Brazil? Dykstra was talking to her all by himself for most of the evening. They were sitting right near the skelter and he literally dragged her with him. It would have been funny if it hadn't been so tragic."

A long silence followed, during which the boy with the first-aid kit completed his task and left the room.

Eventually Mustapha said, "Rest now, Frederick. Stay and sleep where you are. Ali will make sure that someone watches by you until you waken. After a rest you will certainly feel better."

"Thank you," Satamori mumbled. He rolled on his side and passed out almost on the instant.

IT WAS not until he was safely clear of the Room of Flowers that Mustapha dared give way to the sense of terror that had exploded in his belly on hearing Satamori's news.

Hans Dykstra—first to arrive at Aleuker's party! Singled out as though he were the computer-chosen winner of a lottery.

Of all the billion people left on Earth, no one more dangerous could have been successful in the treasure hunt.

Worse yet, he had escaped—had started the panic, if Satamori could be believed—and had dragged along with him this girl nicknamed Barbara.

Something had to be done at once, for security's sake.

Would he have gone home? Logically, yes—but to a chilly welcome. Mustapha had met and evaluated Dany. Chatting with her once had given him a complete picture of her personality. If her husband came back from a party held by somebody as famous as Chaim Aleuker—which she would doubtless have wanted to attend herself—and brought with him a girl in her teens, allegedly very pretty, hell and all its devils would be let loose.

So if he had any shred of his wits about him, Hans would not have gone back to Malta. Where?

Ah. Yes, quite conceivably. That code, after all, would have been at the forefront of his mind, ready to hand when the attack began. And

on that skelter there was no privateer and . . .

It would take only a few minutes to confirm his guess. Mustapha hastened up the staircase of his tallest minaret, entered the secret room containing his third skelter, put on his climatized clothing and punched the code for the Eriksson house at Umea.

HANS had been so sure—so absolutely certain—that there would be no one in the Swedish house apart from Anneliese, that for the first several seconds after his return he thought only of trivia. The sun had gone down after the brief northern winter day, but the place was warm. Therefore the heating system must be working okay because the fire had died to embers. Beside it in the gloom sat a cloaked figure, logically Anneliese wrapped in a blanket. He hoped she had not woken so long before he arrived that she was frightened.

The last chunk of a log slipped on the hearth and uttered a spurt of bright yellow flame. The light revealed that the person waiting for him was not Anneliese.

He exploded with mingled rage and terror.

"Mustapha! What the hell are you doing here? You've broken our compact."

"It is not my custom to resort to the *tu quoque*," Mustapha murmured. "If it were I might well say that you not only broke it, but

smashed it into fragments and trampled those fragments into dust. Must I remind you that I laid it down as a condition of supplying you with illegal codes that you should never under any circumstances bring another person to one of these abandoned homes?"

"What other person am I supposed to have brought?" Hans cried, knowing even as he voiced the words that they were futile.

Mustapha's tongue clucked. "Though I'm blind I am not unaware of what goes on around me. You of all people should have realized that by now. I scented the girl the moment I left the skelter, over and through the smoke of the fire which doubtless you built for her. And, by the way, keep your voice down. She slept contentedly throughout my inspection of her, but she is near to waking and a loud noise may rouse her."

"Your—inspection?" Hans forced out, advancing on Mustapha with fists clenched. "You've been *feeling* her?"

"Oh, I was right—I sense jealousy," Mustapha said. "I was unaware that she had become your property. I have no eyesight, man, but my fingertips—you saw—are delicate enough to stroke the full length of a spider's web and leave it unbroken. You think to touch a girl is to maul her, ravish her—I think of my touch as having to be lighter than a glance. She did not even turn over, let alone wake up . . .

How old is she, this girl whom Chaim retrieved from the Brazilian *sertao*? Seventeen? Eighteen?"

"Who told you—" Hans's voice failed him in mid-question.

"I was right again," Mustapha said, "You imagined your departure with her from Aleuker's home was unobserved. You are too commonplace, too interchangeable a person to sense that unique recognizes unique. I am not surprised that you found your way to Chaim's party. I am surprised that Chaim and his friends imagined that people like you could save the world, frozen as you are into the mold of the past. You're like a vampire—one of the undead compelled to spend half his life in a coffin."

BLOOD was roaring in Hans's ears and the room swayed and swirled. He said, "Okay, so someone saw me leave Aleuker's with her, but I may well have saved her life by bringing her here and—"

"Here? Instead of Valletta? Most people in the grip of panic think at once of going home." Mustapha's tone was gentle enough, but contempt rode the edge of his words as light may ride the sharpness of a steel blade. "Not, of course, that you could have made it clear to your wife that your intention was simply to save the life of a poor friendless girl—"

Grasping at a straw, Hans rapped, "Of course not. You've met her, you can imagine the scene

she would have created."

Mustapha shook his head. "Wrong reason—and dishonest with it."

"What?"

"I can read you more clearly than you, with your good eyesight, can read one of the books I've sold you." Mustapha rose, reaching out one hand to the brick side of the chimney that swallowed the small remaining trace of smoke from the fire. "You could have convinced Dany you'd brought the girl home to save her life, if that had been the truth—but it was not. I can hear the processes of your imagination. I can put them into words, even into English words, though I would be more precise and cruel in Arabic. I see your whole plan laid out before me, like a map, like a carven stela from Luxor that my fingers have grown acquainted with. I say this is what you intend—"

He drew himself bolt upright and his blind eyes seemed to shine dazzlingly into Hans's.

"I say your plan goes like this. You have by chance been brought together with a girl who is lost in the modern world. Aleuker, a busy man with more friends, more women, more preoccupations than he could cope with, neglected her when he found her childhood conditioning had scarred her mind too deeply for her to be turned into a decent citizen of today's world.

"But you have the time and the urge. Hating your wife, possessing

her not as a person and a partner but as a trophy, a prize that all too many men these days can never aspire to, you suddenly realize there's a chance for you to supplant her. What likelier target than a girl who is lonely and miserable and frightened? In a few months, gratitude—in a year or so, divorce—Dany like any other woman can always find an eager youth wanting to share her bed—and after that remarriage. Legal binding marriage to a teenage girl who's been carefully prevented from involving herself with anybody except Hans Dykstra. It won't be love, but you never understood what love is. You want to buy this child as though she were a slave and bind her to you with intangible chains."

The diagnosis was too terribly accurate for Hans to answer at once. He gulped air, swayed, blinked, at last found his voice again.

"You dare to say that to me? You, who've done the same and worse to kids from all over the world? Spent your time and money hunting for orphans, boys as well as girls as long as they're pretty and bright, seduced them into your bed and imprisoned them in your home and taught them just those jobs they can't make use of anywhere else if they do decide to try and escape from you? What do you pay for the children you enslave?"

"I pay what you can't because you've never had any," Mustapha

said and the words quavered unexpectedly. A glint from the fire showed, bewilderingly, that tears had gathered in his sightless eyes. Suddenly they spilled over and ran down his face.

"What? What are you talking about?"

"I pay love." The poet gathered himself again, brushed at his itching cheeks. "I have never bought any of my proteges. Of either sex. I have kissed and embraced and comforted those who never before in their lives were touched by another person except to be punched or slapped. I have broken my heart so many times it is held together with rivets like a shattered porcelain bowl, because I have always let go those I loved with the depths of my being when they said it was time for them to become themselves, to be individuals and not to depend on me any more. Compared to what you plan to make of this girl—a bunch of reflexes, a machine whose buttons you can press at will—I am sinless and without reproach."

The world turned red around Hans. Without volition he snatched at a poker lying on the side of the hearth, hot but not too hot to grasp, and used it to silence that accusing tongue.

Interface N

Proverbially

"Absence makes the heart grow fonder."

—Or so they said who are no longer with us.

Likewise, however,

"To be out of sight is to be out of mind."

—I never knew which proverb to believe.

*You whom I love
Stepped through the skelter
yesterday.*

*—Now I have had proof that
both are true.*

—Mustapha Sharif

"Who? Hans! What— Oh, God!"

An incredible confusion of slump, cry, run, exclaim, moan. It all happened in a time when Hans was out of touch with the universe—it sandwiched together, compressed, declined to be separated again.

But that was a moment ago. At this moment Anneliese stood at the door of the room where she had been sleeping, staring at what the wan firelight showed, petrified by horror. Her dress was crumpled and, in a sense, so was her face, for she had been lying on a fold in the pillows and a deep dent marked the skin of her left cheek.

Nobody, no matter how dull-witted, could have failed to add together a scene like this: prone by the hearth, an unconscious stranger, dark blood trickling out

of his hair, and Hans still clutching the poker he had struck out with.

He remained in a daze until she managed to force out the all-important question.

"Have you—killed him?"

"No—" Hans's mind seemed to rush back to normal operation. He could think again and he discovered a cluster of excuses full-blown and ready for use.

"Who is he?" Anneliese asked.

"I've no idea. But I know what he is."

She advanced a pace toward him, hands clenched, jaw-muscles lumping as though to restrain a scream, and waited for him to elaborate.

Now I've got to pile yet another untruth atop the crazy pyramid I've already erected. Why? Why? How did I get tangled in this lunatic mess? I lost my temper, that's all—first with Dany, then with Mustapha, both times with complete justification. And all of a sudden it turns out I'm snarled up as though I've been wrapped in barbed wire!

Was I to know so many people would notice me leaving Aleuker's that Mustapha would get to hear in a matter of hours?

Oh, maybe I should have guessed. After all, I bought notoriety, didn't I? By being the person who won Boris Pech his bet . . .

I'm not myself. It's all happened too fast. I claim to follow the Way of Life and I just used frenzied violence against a fellow human

being. That's not like me. It isn't—I'm sure it isn't in my real nature to do that!

So I'll be justified if I put the best possible light on things. I'll atone later. When I've straightened matters out. After the inquest on Dany. After finding a place to live a long, long way away from Malta. I can just disappear from the awareness of my friends. My colleagues at work must be informed, naturally—but I can lose the people who knew me with Dany. I can start over somehow, I can—

THE rush of thought had to break off. Anneliese was staring at him, still waiting for the reply to her last question.

He fumbled for the proper words.

"I'm dreadfully sorry about this. But I imagine you've been told there are still criminals in our modern world?"

"Y-yes—" In a voice as faint as autumn wind.

"This is one. Of the worst kind. What we call a code-breaker. A person who figures out how to use a private skelter and sneaks in to rob people's homes and, if he's caught, to kill the person who catches him."

"Are you sure?"

"Do you think I'd use this—" brandishing the poker—"if I weren't?"

"I thought I heard you talking together," she ventured.

"Well—of course! I wouldn't have knocked him down on sight, would I? But when he couldn't give a satisfactory account of his presence there was only one sensible course of action."

"I—" She shook her head. "I must have misunderstood. I believed that because of something Chaim invented, this didn't happen any more. Didn't he devise what they call a privateer?"

Hans cursed silently. Ignorant this girl might be—she was in no sense stupid.

"Yes, but I'm talking about the sort of burglar who can get around a privateer. What one man can invent another can evade. It's very rare, but it does happen now and then."

"I—I see."

"There are always flaws in the best systems. You get transmission errors, for example, like the one that—" He interrupted himself, momentarily experiencing a renewal of his former panic. The less often Anneliese was reminded about the "anonymous" dead woman, the better. "But I've got to get you out of here," he finished.

"Why?"

"Because where one code-breaker gets in another may follow. Very often they work in gangs. If this one doesn't report back in half an hour or so his confederates may very likely come to see what's happened— You poor girl! It must be absolutely terrible to have seen so

much of what's bad in today's world and so little of what's good. I do promise you, it is possible to be happy and enjoy yourself and make plans for the future and see them fulfilled. I want to give you that. You deserve it."

In memory, an echo of Mustapha's accusations—but he stifled it.

"Where will you take me, then?"

"To a safe place. For just long enough to sort this out. I'll have to tell the police, of course, and then I'll have to have the skelter re-coded. It takes a few hours. I'm so sorry, I really am. Because what I most want to do is help you. You—ah—you don't mind my wanting to help you?"

All the color drained from her cheeks.

"Hans, where would I be if there wasn't somebody to help me? I could be dead. Couldn't I?"

Hans opened his arms just in time as she rushed at him and buried her face in his shoulder and convulsed into sobs.

There followed an unmeasured period, during which she wept and he caressed her back through one thin layer of cloth and dreamed of the time when the cloth would no longer be there. How long would it take to persuade her by slow degrees that it was okay for her to strip in his presence?

Too soon. Too soon! Keep your head, Hans Dykstra, and don't push your luck . . .

EVENTUALLY he drew back from her and murmured something about having to hurry. She nodded pliantly.

"Just to be on the safe side," he said. "I guess I'd better tie this villain up so he can't get away before the police collect him—"

"You will not send for them at once? They could be waiting here when his confederates come, couldn't they?"

Once more Hans chided himself for underestimating this girl's native wit. How to get around that little problem?

"Ah, but suppose the police and the other code-breakers arrive together. You could be involved in another gunfight. You just escaped from one at Aleuker's—surely you don't want to risk another? Just do as I say and everything will work out fine."

She raised no more objections and within another five minutes they entered the skelter together and he pressed the code for a Way of Life refuge he had once visited in Bali. Anneliese might be disturbed at finding herself among committed heathens—still, the place had three great advantages. The monks and nuns took in anybody, gave help and never asked too many questions—they were always extremely busy and maintained no records, preferring to get on with their real work and forget about what happened yesterday—and very few people there spoke more than a

smattering of English, let alone Flemish or *Plattdutsh*.

THEY were received at the skelter door by a smiling, thirtyish woman garlanded with flowers—flowers were also braided into her black hair. Apart from that she wore only a sort of kilt secured with a belt of woven leather from which dangled a small pouch. Anneliese's fingers cramped painfully on Hans's arm as she realized that by her standards the woman was shamelessly unclad.

He murmured reassuringly, "You probably find this hard to believe—but you're looking at a nun."

She turned wide disbelieving eyes to him. "A—a nun?" she repeated.

"What else do you call someone who has decided to dedicate her existence to helping others because of what she believes?"

"I—" Anneliese's voice failed her. Just as well—it would have complicated matters beyond bearing to try to fill in the details. A somewhat more exact term than "nun" might have been "temple prostitute"—but it would still have been wide of the mark. The concepts of the Way of Life were as subtle as any evolved by previous religions—and required a wide open mind.

By then, however, the woman was making them welcome with smiles. She had for each of them a

posy of fresh-picked flowers and invited them with gestures to leave the small room in which the skelter was located and follow her down a quiet corridor walled with stone and lit at intervals with lamps set behind translucent paintings, all of various living organisms, from naked athletes to lowly bacteria shown magnified thousands of times.

"It is the belief of these people that no harm should ever be done to any evolved creature," Hans whispered. "With one exception—if a superior creature may be saved from suffering thereby. They are willing to cure diseases even though it means killing germs—you follow me?—provided a human life can be made better because of it. You'll find these people both kind and generous. This is a refuge they keep open for anybody who wants to come to it: people for whom life is too much of a problem, who need to rest and relax and think things out, or people who are ill and have no friends or relatives to look after them. You don't have to believe what they believe. They give what they can and leave it at that."

"I—I see," Anneliese answered. "Once I read a book about monks at the Pass of St. Bernard in Switzerland, who had to help everybody lost in the snow. Is it like that?"

"Yes, much. Except you should say: people lost in the world."

He was infinitely relieved to find her so open-minded. Doubtless she

would also be favorably impressed when she learned that no meat was ever eaten here because no follower of the Way of Life could kill an animal—he himself had never become a convert to total vegetarianism, but he had often had qualms of conscience about eating meat. When it came to some of the rituals glorifying sensuality, on the other hand, Anneliese might well be completely repelled. But with luck she would have to stay here so short a time that she wouldn't even hear rumors about that side of it.

To an elderly, also nearly naked woman of perhaps sixty who had retained an astonishingly attractive figure even though her face was wrinkled like an old apple—but wrinkled for the right reason, because she had talked and smiled and laughed a great deal all her life—he explained slowly in English the reason why he had brought Anneliese here. He referred to her parents' fate and then to the attack at Aleuker's and then to the burglar at his home where he'd taken her for safety and the elderly woman nodded every time she got the picture through the barrier of a half-comprehended language.

"We shall help and take care," she said firmly. "Is a badness, so much hate and hurt. Will here be safe!"

He asked Anneliese, "Do you think you can stand it here for a while—for as long as it takes me to sort everything out?"

She bit her lip.

"I think so," she said. "I don't understand why these people do what they do, but it must always be good to help people in trouble, I think. I don't really understand why you're helping me either, but I am very grateful to you."

That encouraged him to embrace her on parting and even to plant a chaste kiss on her lips: light, brotherly, most out of keeping with the practices of the Way of Life.

But luckily Anneliese didn't notice the look of astonished disapproval that crossed the face of the old nun.

He was humming as he stepped back through the skelter in Sweden, rehearsing the terms of the bargain he was going to strike with Mustapha: leave me alone and I won't report you for selling illegal codes. Fair?

It would have been. Would have had to be.

But Mustapha had disappeared.

Interface O

The great courtesans

Reported by old scandal-mongers

Notched up their respectable collections

Of noblemen and servants and friends

But never managed

*Because they could not manage
What girls of the most respect-*

*able descent
Take for granted in modern
times—
That they should sleep
In seven beds on seven
continents
Incontinently in any given
week . . .*

—Mustapha Sharif

IN THE other of the two rooms of this home where nobody except his closest and most intimate servants entered—the first being the room with his secret skelter, the second *not* being his bedroom which had been shared over the years with an amazing range of partners—Mustapha Sharif waved aside with thanks that same boy who had tended Satamori's wounds and pronounced himself capable of thinking clearly again.

Ali and Feisal, his body-servants, and Muley, the chief scribe who was the third of his right hands, stood about Mustapha, exuding anxiety so fiercely he did not need eyes to read their expressions.

"It must be done as it was done before," Muley said in a sententious voice.

"No." Mustapha rubbed his forehead. His head still ached, but a cold compress, a salve and a glass of sweet mint tea with a pain-killing drug dissolved in it had brought his body's agony under control. He said again, "No, not in any detail the way it was done before. Instead of dealing solely with a conscious

criminal we now have to take steps to ensure the safety of an innocent girl, barely more than a child, for whom this—this *person* has conceived a fate worse than imprisonment. He plans to put shackles on her mind, cripple her in a way no bodily restraint could match. He is, moreover, unaware of what evil he is hatching. Muley, I trust you as I trust myself—and sometimes more so. I need your thoughts to help me. Judge, in accordance with what you believe, a man married to a woman older than himself, not altogether intelligent. He has confined her to him by legal bonds, then made her so miserable that she has learned to hate him and herself, too. On the basis of a chance encounter with a younger woman he now decides he is going to abandon his wife—and he is showing himself *capable* of discarding her because he has a chance of deluding an ignorant teenage girl into the misconception that she must depend on him and him alone in order to keep afloat in a world she doesn't understand. Well?"

MULEY plucked at his large lower lip. He was a portly man, full-jowled, pot-bellied, soft. As a small boy he had trodden on an inefficient anti-personnel mine, which did not kill him but did reduce him to a condition that in other ages had been more deliberately created. He also limped on his left leg.

"I had already passed my judgment," he said, "before you set forth all your facts. Because there is one additional detail you seem not to have heard of."

"Tell me, then."

"This man is not married. He is widowed."

Mustapha tensed. "Explain! How do you know?"

"The moment you returned, injured, I initiated an inquiry—discreetly and by roundabout routes, but also rapidly. The task was not difficult. News of an inquest is come by very simply."

"But you can't be implying that he killed his wife?"

"Indeed, no. The news runs that his wife killed herself as a result of some insult or affront he gave her."

"Ay-ay-ay!" Mustapha's hands clenched into knobby fists. "And there is to be an inquest?"

"Tomorrow morning at ten, local, in the Valletta coroner's court."

"He is obliged to attend?"

"Yes indeed. He is the only witness to the facts."

"Oh, but this is a disaster," Mustapha cried. "For him not to appear will create a planetary hue and cry. But if he does appear he may let slip something that . . . Yes, it would be fatally easy for him to lose track of his complicated lies."

"We must eliminate him," Ali murmured. "We can catch him when he arrives at the court—"

"Out of the question. He has secret files to be opened in the event of his death. They record his expeditions with me—and while he pledged that he would not include any hint of my identity he may now have gone back on his word." Mustapha shook his head. "No, I see only one possibility. We must track him down and persuade him it is still to his advantage to keep our secret. All being well, the threat of a bracelet will fetter his mind more securely than the ropes he used on me!"

MUSTAPHA rubbed his chafed wrists and ankles. "Sometimes, you know, I feel that those with sight overestimate the advantages they derive from it. I would never have believed that anybody in his right mind could do as sloppy a job of lashing a man's arms and legs as Hans Dykstra did with mine. In pain, giddy, frightened, I released myself from his amateurish bonds in—oh—perhaps two or three minutes. He left slack on both my wrists, as though he conceived them to be round instead of twice as thick one way as the other—Muley, detach a hundred apprentices and juniors, preferably active and intelligent youths, and assign them to me for instructions. It should not be very hard to outguess someone like Hans Dykstra, who right now is gripped by a fear that should prevent his thinking clearly.

There are only a half-dozen places apart from the Valletta court where we stand a chance of catching him. We should be able to cover six skelters."

"We should ambush him at the house in Sweden," Ali said.

"If there is time— No, I can't imagine that he won't have by now discovered that I've made my escape. His reaction, if I read his personality right, would have been to smash or burn the place. Not that I'm certain he's done so. He's disintegrating. He has lost both the things that justified his existence in his own eyes. He will no longer dare to indulge his illegal hobby, which he engaged in more from bravado than from love of knowledge—and equally he has lost that rare prize, a wife, just at the time he believed he was about to do what scarcely a man alive today has been able to do—get rid of her in favor of a woman younger and far more beautiful. He has been to a high place and seen the kingdoms—and it proved a lie. He must be losing his mind more from frustration than from any other single cause."

Mustapha folded his hands with an air of finality, but the servants made no move to depart.

"Is something more remiss than you've told me?"

"There is the matter of Dr. Sata-mori," Ali said. "He is still here. Asleep, fortunately. But when he wakes he will no doubt wish to express his thanks for your help."

"Then he must have the chance to do so. But make it clear when he does wake and asks to speak with me that I would far prefer to be at work on a new poem."

THE air in the Eriksson house felt as stiff as glass. Hans half-expected to find it crashing down on him like a shattered dome as he forced himself to take a pace forward from the skelter.

It was still very dark here, but the same log that had flared to reveal Mustapha earlier was conserving a bright glow and—perhaps fanned by the currents that had accompanied Hans's emergence—now transmitted flame to a sort of snakelike object lying in the hearth.

Rope. The rope Mustapha had been bound with.

Who—*who*—could have come and set the captive free? Had Mustapha guessed he would be attacked? Had he alerted one of his many servants? *If I don't return after such a time I can be found at such and such a code and I'll be in trouble . . .*

Hans put his hands giddily to his temples. Never in all his life had he foreseen he might wind up in a plight like this. It was infinitely worse than the nightmares he had sometimes experienced as a result of remembering how dangerous his illegal hobby was. But even if he were one day braced for his activities he had always, deep down, imagined that there would be

people who paradoxically would respect him as a martyr. The people he had met at Aleuker's, above all, might exhibit that response. Surely someone like Boris Pech, who had asked to have a particular item searched out among the garbage of Europe—surely he and those he regarded as friends would be tolerant of a selfless infringement of an arbitrarily absolute rule . . .

But Hans wasn't dealing with Pech, Satamori or Castelnuevo now. He was dealing with Mustapha Sharif, an unpredictable, emotional man who was as much of a stranger to Hans as during their earliest acquaintance.

In sum—a man whose motives defied scrutiny as completely as if he were insane.

AFTER only a few seconds of struggle Hans realized it was useless to try to reason his way out of yet another crisis before he slept. His day had stretched to more than double its normal length. He was shaking more from weariness than fear—after all, he had already produced inspired solutions to several seemingly insoluble problems—and in a few hours he must really have all his wits about him. Checking his watch, he was appalled to see just how little time did remain before he was required to report for Dany's inquest.

Fatigue notwithstanding, he abruptly felt a need as deep as hunger to *do* something—at once.

It was as though the sort of fury that wrenches the power to act from the head down to the guts had been grafted on his conscious mind—he felt a blending of naked anger with dazzling insight.

"I will teach him a lesson," he said to the air. "I will show him I'm not to be trifled with, even though I am a lowly recuperator and not a world-famous public figure—"

He strode forward across the floor, suddenly released from his moment of subjective paralysis.

Beside the bed where Anneliese had slept stood the candle he had placed there. He lit it and carried it back into the living zone, trailing also the duvet, the big feather-stuffed coverlet that was—he fancied—faintly scented with her body.

He went into the kitchen and opened the cock on the side of the oil tank serving the central heating system. He soaked the duvet, then dragged it across the floor after him so that there was a thick line of oil on the floor, thick enough to catch light and feed flame back to the puddle accumulating alongside the tank. Once the candle was touched to it, the whole lot would go up in a great smoky bonfire.

At the last moment, instead of simply tossing the candle at the duvet and stepping into the skelter, he checked. He had never heard of a means to inactivate a skelter by remote control—but suppose Mustapha had arranged things so that

he was meant to be trapped here? Suppose the elderly skelter had been sabotaged? He could burn to death in his own fire!

He thought about that for a while, with a very clear and detached attitude, weighing the pros and cons. Eventually he balanced the candle on a candlestick about eight or nine centimeters high, leaned the duvet against it and used a folded shred of paper as a sort of fuse, certain to catch within five minutes but no sooner.

Candle burns down while paper soaks up a little oil—paper burns and falls on duvet—duvet blazes up and the tank explodes . . . Right.

He entered the skelter. It worked perfectly. He was at home. With a sigh of relief he rushed into the bedroom he once shared with Dany, set his alarm and collapsed into sleep without even taking time to undress.

Interface P

*O, my friend, you have come a
long way
from your home in the next town
north—
sit and take refreshment.*

*O, my enemy, you have come no
distance
from your home the other side of
Earth—
speak and at once be gone.*
—Mustapha Sharif

THE building where the coroner's inquest was to be held had been a hotel during the period when Malta was a popular tourist resort. It had been damaged in a riot and patched in an extraordinary fashion by an architect who was a devoted Maltese nationalist and felt it insulting to have "modern" buildings on this island. Even before its floors and windows had been mended, even before the damage due to firebombs and bullets had been repaired, he had insisted that its frontage be disguised with more "traditional" decoration. So, where there had been balconies of plain concrete and precast iron rails, there were now rain-worn plaster copies of the kind of molding seen on ancient churches, some threatening to break loose and needing to be lashed in place with bits of wire.

But after the Blowup most people had kept their heads even less well than that architect.

Hans's mouth was dry and his eyes were blurred because, despite setting his alarm, he had overslept and left home in such a hurry he had forgotten to bring his dark glasses. It was a bright sunny day.

However, what had haunted him during his short sleep and filled his dreams with images of distilled terror evidently had not come to pass. The media were not making a grand scandal out of the death of this married woman, even though the circumstances were scandalous.

Newspapers were in evidence here because the TV was underfunded and unreliable—they were sold on the streets by people who could find no better employment, notably by bracers. On the placards held by those he passed as he walked to the court he read the day's headlines and all were concerned with the tragedy at Aleuker's party. Arrests had been made in the local Maori community. Some whites had been accused of complicity and enough important, famous people had been killed to make the event the chief topic of discussion the world around.

Call it a fringe benefit. Time was when an event like Dany's suicide, because of its local connections, would have displaced whatever happened half a world away, up to and possibly including an outbreak of war. Influenza-M, Alaskan croup and a particularly virulent strain of cholera had slashed the Maltese population by seventy per cent. It had become too small to run the islands properly and had had to be topped up by bribed immigration. Malta was now part of the world scene.

So this morning Hans had only a minor ordeal to face. He would testify exactly as he had when confronted by Vanzetti and would benefit from the sympathy of the court because he had lost that precious and all-too-often irreplaceable asset, his wife, and that would be that. By lunchtime or there-

about he would be able to head for the Balinese refuge, collect Anne-liese (before she was overexposed to the ideals of the Way of Life, a sniggering demon remarked from the corner of his mind) and ask her where on the planet she would most like to live. Ah, a great idea. Invoke her opinion from the very start—that was the ticket. Make sure she was emotionally committed to everything from this day forward. In next to no time she would be taking it for granted that he and she did everything together, including choosing a home. So his right course would be to ask for compassionate leave from his job—which, of course, would be granted without demur—and spend the next week or two becoming truly acquainted with Anneliese and exploring some of the likeliest locations for their new domicile.

He had just realized he was humming cheerfully—and that was wholly wrong for a man whose wife had died under Dany's circumstances—when he rounded the last corner on the way to the building where the court was to meet for the inquest.

And stopped dead.

He had only once visited Mustapha's palace at Luxor. But he remembered with clarity the features of the chief scribe, Muley Hassan, who had shown him over the scriptorium.

Hassan was here. In ordinary European clothing instead of his

regular Egyptian garb, with dark glasses on his nose—but unmistakable. Hassan glanced at his watch as though confirming the time of arrival of a friend with whom he had a long-standing appointment.

Hans stepped back as though he had been physically pushed. A person behind him complained in a volley of curses, mixed English-Arabic-Maltese, crowned with obscene German.

But I mustn't miss the inquest...

What about a back entry to the building? Perhaps one where he could contact one of the helpful policemen he'd had such sympathy from? Hans thought hard about the layout of the district and concluded there was a back route that would delay him only a few minutes and—oh, miracle—Glimpsed through a door about to slam shut the sergeant who had first appeared in his skelter.

Hans rushed forward, shouting, and the man responded by holding the door ajar.

"Mr. Dykstra—you ought to be in court by now."

"I know, I know—and I'm trying to get there." Lies flowed from Hans's tongue smoother than oil—the habit was becoming compulsive. "But I'm trying to avoid somebody who knew Dany and thinks her death was my fault. I'm a little scared."

The sergeant looked grim. "Ah, I know just what you mean. We've had half a dozen cases like that.

You're talking about the sort of person who thinks every time a woman dies the race is in greater danger than it was yesterday."

It was the first time Hans had heard of people who held such views, but they jibed magnificently with his spur-of-the-moment invention. He nodded.

"Right. Come with me. I'll have a word with Vanzetti. If we have to we can always clear the court."

"I hope that won't be necessary," Hans said and was startled to hear how sanctimonious his voice had become. "Although I guess it might be a good idea."

THE judge was convinced immediately that it was a good idea. He was a testy man, oozing perspiration.

"I will not tolerate the slightest risk of a disturbance in my court," he barked. "If the unfortunate Mr. Dykstra is likely to be hounded by lunatics—Is there any doubt that we have a simple suicide?"

Vanzetti shook his head. "According to our forensic people it all hangs together perfectly."

"In camera, then," the judge said. "I know the press won't like it, but they can go jump in the sea. I'm overworked and underpaid and I wish I, too, had time to pursue crackpot notions."

THE inquest, in the near-silence of a large and almost empty

room—which must originally have been a banquet hall—lasted less than thirty minutes and closed with the judge expressing his condolences.

Leaving the room in company with Vanzetti, Hans said diffidently, "Inspector, you've been tremendously kind—but I wonder if I might impose on your good will just a little longer."

"Oh, by all means. I'll do what I can for you. Do you want help in re-registering your domicile? I recall your saying you were afraid of becoming a stuck if you had to keep coming back to the same place where your wife died."

"Uh—well, more or less," Hans said with a swift change of mental gears. "I'm not yet sure of where I want to move to, but I do know I'd like to stay out of sight of certain—ah—fanatics."

"Do you know how you attracted their attention?"

"Uh—no. Unless," he added quickly as inspiration dawned, "it has something to do with my making it to Aleuker's party. Perhaps somebody who was cheated of the chance—"

"And doesn't realize how lucky he or she was," Vanzetti grunted. "You heard the death toll is up to fourteen? Two more of the guests died and they have little hope of saving another two."

"Shameful."

"Yes, one would have expected mankind to learn a lesson from the

Blowup, but—" Vanzetti shrugged. "Well, it isn't my job to redesign humanity. You want access to an official skelter, is that it? Under escort, so nobody can get at you?"

"Yes, please. I'll get my home—my old home—recoded so it can be offered for sale, but until then I think it might be sensible for me to intrude on the hospitality of various friends. Will you be needing me again?"

"You heard the verdict. Suicide while of unsound mind. The case is closed." Vanzetti hesitated. "I must admit, Mr. Dykstra—"

"You're going to say," Hans interrupted, "that I could have been a little kinder to my wife. Yes, I suppose so. But you know about her mental instability. I did my best. I promise you, my absolute best. It wasn't enough."

"That's a tough admission for any man to make," Vanzetti said. "I think I rather admire you for being able to say it. So often one runs across people who are determined to deny their own inadequacy. No, change that to shortcomings."

"Either way it hurts like hell," Hans said.

Vanzetti said with a nod, "I suppose I wound up in police work for the kind of reason exemplified by your predicament. We're all diminished by the stupidity and brutality of any given person, including ourselves. Very well, Mr. Dykstra, I'll be glad to ensure you get safely into

the skelter system and we'll keep watch for anybody trying to pester you by using the code for your home until that's revised."

"Oh, don't go to that much trouble, please!"

"No trouble, none at all." With an airy wave. "Code-breakers are among the worst criminals of all, aren't they? And the offense is compounded if what they're trying to do is sneak past the privateer of someone recently bereaved."

THINGS were getting worse all the time, even when they appeared to be going best! Life was suddenly full of lunatic paradoxes and Hans felt himself being squeezed into new hateful and painful shapes as a result.

His plea to Vanzetti had succeeded at once—but now he was faced with an even worse problem. Believing that Hans was persecuted by madmen, Vanzetti was bringing to bear the force of the law on Hans's predicament.

And who had more to fear from the law than Hans himself, the man who had broken code after code for years, not by his own skills but by bribing somebody else? The kind of arrangement he'd made with Mustapha was bribery—it was conspiracy, too, and there were other and even nastier names he shut away to the side of his mind.

It seemed hideously certain that very soon he was going to be at some random location on the face

of the planet, staring at a new neat shiny metal bracelet and thinking of how much of his life had been destroyed.

Unless he contrived to salvage something from the wreckage.

The image came readily to mind. Had he not spent most of his working adulthood salvaging things that other people were then allowed to make use of? Was it not high time he took advantage of a salvage operation performed by someone else? Was that not the clear incontestable definition of what he in fact was doing?

All these thoughts rushed through his mind as he was whisked away from the court building to the nearby police headquarters and politely invited to step into a secure skelter there, one where no camera or detector could note and record the code punched by a person departing. It was forbidden by law to record that.

Poising his fingers, he spent a final second on confirming his opinion of what he was committed to. Yes, he was acting in accordance with the ideals of a recuperator. His salvage happened to be a living human being—there was no other difference.

He punched for the Way of Life refuge in Bali.

Interface Q

*Today is today but
Where is here when it can be*

Everywhere?

*Then was then and
Why is now if it can be
Any time?*

*I live next to no time and no
time
Is an extremely disconcerting
neighbor.*

—Mustapha Sharif

HE FOUND Anneliese in a plain small room that might have been the twin of the one in which he himself had slept during his sole vacation here, before he met Dany. One of its walls was covered with dark-green creeper growing up a wooden trellis from a shallow pottery tray containing soil. There was no other decoration.

The girl was dozing on a heap of cushions, partly covered by a soft pink quilt, which on his entrance she gathered around her body in alarm—but not so quickly that he was unable to glimpse more of her skin than he had so far seen.

He was briefly astonished to notice that it was pallid, white as dough. But of course that wasn't to be wondered at in view of her upbringing. She had probably never shown her body to the sun. How different from Dany, who had always assumed that sitting on a beach in the altogether would instantly conjure up a horde of admiring men from the sand dunes.

"Hans, is that you?"

"Yes, of course." He bent to kiss her cheek. Her first—and obvious impulse was to flinch away, but she restrained it and suffered his lips to brush her skin. "Are you all right?"

"Uh—" She sat up cautiously, making certain that the quilt was tightly wrapped about her. "Yes, they have been kind. They gave me food and drink and took my dress to be laundered." She hesitated, searching his face with her dark eyes. "And you? Is everything all right?"

"I'm afraid not."

"Oh, God! What's gone wrong this time?"

"I think I must have been right about the code-breaker having confederates. The man escaped—and before leaving he set my home on fire."

"Oh, how horrible! How *horrible!*"

"Yes, it is. But perhaps not so horrible as you think."

"What do you mean?"

He kicked around a cushion and sat down beside her, frowning.

"It's hard to explain. A sort of paradox. I feel—I feel as though I've been set free from something. Do you remember? When we arrived at my home I said I'd kept everything as it used to be for far too long?"

"Yes, of course I remember."

"Now the whole of my past has been, so to speak, lifted from me. I'm not in the same situation you

were in when you found that Feste-burg had been burned."

"You poor man—" Impulsively she clasped his nearer hand, almost losing her grip on the quilt—but not quite. He curled his fingers around hers, thinking how large and clumsy they were compared to her small cool ones.

"Is it dreadfully hard to have to start one's life again? Isn't it a chance to forget your mistakes and this time get everything right?"

"I—" She bit her lip. "I suppose if you are a very strong person you can look at it that way."

"I don't think I'm a particularly strong person. But that's the way I'm trying to look at it. Would you like to—" He hesitated.

"What?"

"Would you like to help me—as I've been helping you? Shall we go together in search of a new place to live, a new life for both of us?"

A long moment passed before she answered. It was like a foretaste of eternity.

But in the end she gave a nod and was able to force a smile.

"Wonderful!" Hans leaned toward her and put his free arm around her shoulders. "Oh, I thought when I found myself face to face with that inferno I'd die of rage and misery. And suddenly you've made me happier than I imagined possible—"

"Was the house beyond saving when you arrived there?" she whispered.

"Oh, yes. I almost walked into a wall of flames."

"You didn't burn yourself?" She released his hand to feel his face. "If it was burning so fiercely—"

"No, I moved quickly," he interrupted. "I don't believe I even singed my hair. I stayed just long enough to take in the sight and then got away at once. I was afraid the skelter might break down with the heat and strand me. Maybe that was what the criminal intended." He felt her shudder and added hastily: "Don't distress yourself, darling. It's over—over and done with. Let's make our fresh start together right away and in a few days what has happened before to each of us will all be merely a bad dream. Any idea where you'd like to go? Somewhere sunny and safe—that's what I'd like. The Caribbean, the Azores or Polynesia—"

"I—I don't know," she muttered. "Those are just noises to me, those names."

"Then we'll begin by looking them over. It's high time you became acquainted with the planet." He rose to his feet. "I'll go find your dress, or if it isn't dry, something else that you can wear. We'll leave at once."

"**Y**OU are well rested?" Mustapha inquired solicitously of Dr. Satamori. "You are fully recovered?"

"Well enough to get back to work, certainly," Satamori said, gingerly touching the neat bandage around his head. "As for rested—I kept having nightmares."

"That's hardly surprising," Mustapha murmured. "I, too, had a bad dream, concerning what might have happened if I had gone with you to Chaim's place."

They walked another few paces along the shady, colonnaded pathway leading to the skelter by which Mustapha's guests arrived and left.

Suddenly Satamori said, "My dream was that the attack came through the skelter instead of—no, I recall more clearly now. It came by land and sea. While the privateer was temporarily disconnected for the benefit of those who solved the treasure-hunt clues it would have been easy to send in two or three armed men."

"Or simply to deliver a powerful bomb," Mustapha agreed gravely.

"I'm glad I didn't dream that, too," Satamori said, with a nervous chuckle. They had almost reached the skelter. He paused and turned to face his host. "I am greatly obliged for all your help."

"There's no need to leave even now if you're not really up to it," Mustapha said. "Stay longer, as long as you wish."

"No, really, I must go. I have work to do. And among the first of my tasks must be to check on what's become of the people who won the treasure hunt. We are now

even shorter of valuable brains than we were before. I hope I don't sound callous, but one must make the best of things."

"You have a list of some kind?" Mustapha probed.

"One was compiled by Chaim's chief footman, but it was probably destroyed. No matter. I have a good memory and I was introduced to virtually all who arrived. I'll start with the recuperator who showed such presence of mind in escaping with the Brazilian girl. Perhaps he's a coward, but the important thing is that he could react quickly even when he was rather drunk. It shouldn't be hard to locate him—he's bound to show up some time at a public skelter, even if he doesn't feel much inclined to come forward voluntarily for fear of becoming involved in another similar disaster. The elite among us are in constant peril." He sighed heavily. "Mustapha—I often find myself wishing that you'd accept a responsible post. You administer this place so skillfully, so tactfully—If anybody alive is developing the aesthetic of government that might replace our outworn ideologies it must be you."

"I have my roots too deep in the old world to achieve that goal," Mustapha said. "I have not yet finished identifying and cleansing away the foul psychological poisons that are the inheritance of us all. Perhaps we shall never succeed—or perhaps your treasure hunt, which I've spoken of so scathingly, has al-

ready found you the person we need. Or perhaps the savior was among the dead. One cannot tell."

After a brief silence the two men embraced and Satamori entered the skelter.

THE moment the scientist was gone, Mustapha clapped his hands loudly and Ali materialized.

"Has Dykstra not been found yet?"

"Effendi, we are searching the whole planet. But when he appealed to the police for the use of a secure skelter he slipped through our fingers."

"He must be found. Dr. Satamori is about to turn loose the whole resources of the Skelter Authority to locate him. Before I decided to start selling codes to him I prepared the most exhaustive dossier I could about his life and habits. There is a recorded summary of it, labeled HD, in my safe. Bring it to me at once. I must refresh my memory and see whether I have any other clues to his probable behavior."

When the cassette was delivered to him he dropped it into a player-recorder specially modified for ultra-fast playback—much practice had made Mustapha able to follow speech at up to ten times faster than normal speed. It was only a matter of minutes before he clapped his hands again, this time in high excitement, and issued fresh in-

structions that impressed Ali mightily.

"The effendi indeed deserves the official rank Dr. Satamori offered," he said. "One could almost believe him capable of reading men's secret thoughts."

"Don't waste time flattering me," Mustapha snapped. "Go find out whether I've read his thoughts right."

ANNELIESE's dress was not yet nearly dry when—by a combination of pidgin-English and gestures—Hans located it pegged out along with scores of other and much smaller garments on a pole overhanging a shallow stream that ran past the south side of the refuge. An appeal to a helpful young monk, who spoke a little more English than most of the staff, obtained him a couple of alternatives—a sort of sarong left behind by a visitor from Sri Lanka and a suit of pajamalike jacket and trousers rather too large for Anneliese. He seized on the last eagerly, since it would cover her completely and he expected her gender to be his crucial problem.

To his dismay Anneliese cast a single glance at his selection and shook her head, wrapping her quilt more tightly around her than ever.

"That is for a man," she said flatly.

"I don't understand."

"Perhaps you would not have thought of it. I know many women

do go around in trousers. But I have always been taught that it is sinful for women to wear men's clothes—or for men to wear women's."

"My dear girl, surely—"

"Hans, I'm sorry, but I want my dress. It is decently long and it's proper women's clothing. Surely it won't matter much if we have to wait a little longer for it to be completely dry."

Defeated, Hans turned away. "I'll see if I can find something else," he muttered.

"It's not very likely."

"Why?"

"I have been looking through the window." She blushed a brilliant red as she spoke. "I've seen people walking about as shamelessly naked as animals. I shall never do that—never."

Her jaw set stubbornly. For a long moment he gazed at her in disbelief. Then he went out.

Another search of the refuge's clothing store proved even more fruitless than the first. As the young monk explained apologetically, lightweight clothing was ordinarily converted into cleaning rags or bandages, while what winter wear was kept—shut at present in closets with branches of pennyroyal and other herbs to discourage moths—would run foul of Anneliese's prejudice against trousers. What more sensible garb, though, for one traveling to a colder climate?

"Is the girl unwell in her mind?" the monk asked at length.

"You might say so," Hans snapped and explained about her upbringing. The young monk's mouth rounded in amazement.

"I have heard of that. Now I realize that her condition is even sadder than I was told. Well, we shall just have to find a quick means to dry her dress, if she will put on nothing else and won't go about naked. Perhaps in the kitchens. I shall take care of it."

Hans muttered a mechanical word of thanks and wandered fretfully away, intending to rejoin Anneliese and see if he could cajole her into a more reasonable attitude.

As he rounded the corner of the corridor leading to her room, however, he heard his name called. Turning, he found the elderly nun whom he had met before hurrying toward him.

"There is friend to see you," she said, beaming.

"What?"

"At the skelter. All monks and nuns try finding you in all places since half-hour. Has message for you, he say, from mostly famous poet Mustapha Sharif. And is own name of Muley Hassan."

For an instant the world spun crazily around Hans. Then he heard his voice cry, "He's lying! I don't know anybody called that."

The nun stared at him, puzzled.

"Is strange, then. He ask by

name for you, also for girl. Is—ah—*An-nah-li-zah* true? An-nah-li-zah Sen-keh?" She looked pleased at having produced the European name in recognizable form.

"Send him away."

"But he ask by name and—"

"Send him away—or get me and Anneliese away. Anything as long as you don't tell him where I am."

"But why, brother? Why this man so make you fear?"

Hans drew a deep breath and appealed to the one argument he was fairly sure might provoke results.

"Do you wish a man to be murdered here at this refuge? If you don't you'll do as I say."

"Murder?" The nun's eyes grew wide in horror. "He has come to kill you? Then you *must* be sent away."

Interface R

*Once I met a man
who every day
went around the planet counter-
clockwise.*

*He said by this means
he gained a day
and would therefore live forever.
Unluckily for him
Death measures time
otherwise than with clocks and
watches.*

—Mustapha Sharif

"**H**ANS, what in the world—" "Here's your dress. Put it on, since you won't wear anything

else, but hurry. Someone's followed us here and we've got to get away."

He threw the damp garment at her. She caught it and clutched it to her bosom, staring wide-eyed not only at him but at the monk and nun who had also come to the door of the room, looking much disturbed at having had to lie. Muley Hassan had been sent to the farthest corner of the refuge on the pretext that Hans had last been reported there. A few precious minutes had been gained, but only Hans's intense assurance that his life was at stake had won that reprieve. It was a cardinal tenet of the Way of Life always to believe that everybody told the truth. Prince Knud had laid that down at the very beginning of his instructions because, he said, the doom of the old world was inherent in its habit of hypocrisy, ranging from bluff in international relations to hard-sell exaggeration in advertising. And because his teachings were so much akin to oriental tradition they had taken deep root among people like these. On the fringes of the greatest disaster in all of history these monks and nuns were still hunting for clues to help them understand why the population crash called the Blowup had occurred.

Hence the existence of Way of Life refuges like this one all over Asia and Africa and the Pacific—and their absence in Europe and North America, places where not only was there no need to explain

the causes of the Blowup, but so much damage had been done to the minds of the survivors that the notion of having strangers wander at will among them was untenable.

"Do as I say!" Hans roared at Anneliese and she flinched.

"I am to get dressed with so many people staring?"

No, no, it simply couldn't be possible. It couldn't be that he, Hans Dykstra, was condemned because a stupid girl was ashamed to show her nipples. But he gathered his wits by main force and without a word rushed the others from the room. Over his shoulder he cried, "Hurry! Hurry!"

BUT she didn't. Time leaked away, while he and the monk and the nun stood irresolute in the corridor. Then another monk came in sight and called out something—Hans was able to detect the name of Muley Hassan and his patience shattered. He flung wide again the door of Anneliese's room and found her red-faced and struggling to fasten her long drab dress.

"What are you playing at?" he demanded.

She exclaimed in horror at having him intrude when she was incompletely covered. Over her bosom, the front-closing zip was jammed at a height most girls would regard as excessively modest, but she by contrast covered with both hands.

"It's shrunk and I can't do it up."

The world turned red, like the fire he had set at the Eriksson house and had never seen but could imagine. He seized her by the arm and literally dragged her from the room in disregard of her shrieks of protest. The nun and the two monks tried to interfere, but he brushed them aside and physically carried Anneliese the last few meters to the skelter. He shoved her into it and punched the first remote code that came to his mind—Panama.

To the girl, very close to her ear, he said between his teeth, "You would rather be beaten up, maybe killed, maybe raped, than let me see a patch of your chest? Are you insane?"

She fought him for another few seconds, then wilted against his shoulder, weeping, as he pushed her out of the skelter. Here, as almost everywhere, the concourse around the skelter outlets was full of stucks and bracees, making shift to earn their living as touts and shills and guides.

"I don't understand your world," Anneliese was moaning. "I hate it—and it makes me terrified—"

Alertly dozens of the watchers reacted and closed in.

"Ah, sir!" the first said, choosing English—he seemed no more than fifteen, but was muscular and agile. "You want private place to finish raping virgin girl, yes? I got

good place cheap. I—"

Hans cuffed him aside with the flat of his hand, looked desperately for a way past the others and failed to find one. The universe seemed to be full of greedy outstretched hands, shouting mouths, the glint of light on bracelets that forbade entrance to the skelter system . . .

"Hey, you!"

A booming voice that overrode the clamor from the touts and shills and rang with authority caused the mob to fall back and give passage to the speaker: a heavy-set man in his early forties, well-dressed, clean-shaven. He carried in his left hand what might have been a photograph because he glanced at it before continuing to Hans.

"Aren't you Hans Dykstra? I have a message for you from—"

But already Hans's fevered mind had completed the sentence, by way of an instantaneous detour that posed the question: *How did Mustapha manage to ensure that one of his agents was here in Panama—a place I chose at random?*

"Quick!" he forced out and, taking Anneliese by the arm again, dragged her back into the skelter and punched for . . .

SPITZBERGEN. *How many more Scodes can I think of before I have to consult a directory? Before I start accidentally using ones that belong to friends, colleagues at work? Oh, if there were a God I'd*

pray. I'd pray, but there's only the impersonal force that evolved us from the slime . . .

"Hans, Hans, let me go—"

Anneliese was shrieking, trying to pummel him with her free hand.

The cry attracted attention. Here in an Arctic winter the concourse was nearly deserted—those whom chance had stranded this far north spent the time of sunlessness, or so he had been told, adapting the ancient Eskimo practice of wife-swapping to the tenets of the Way of Life. But a fat ugly woman wearing some sort of police-like uniform jumped up from a bench and came toward Hans, grinning from ear to ear.

"Hey, you're Dykstra, aren't you? I never expected you to—"

And back into the skelter and away. Code: Victoria, Vancouver Island—on the western fringe of Canada that had escaped the worst of the fallout from the Blowup.

It was as though Mustapha had multiplied himself, become a sort of all-knowing deity, able to see the entire planet at a single glance.

AND again at Victoria—how could that devil have planted his agents at every public skelter outlet? There were thousands and even if Mustapha had sent every last member of his retinue to keep watch—surely he couldn't have enough people to cover every eyelet of the web.

But once more a stranger rose

and approached with a smile and uttered Hans's name and he fled as before. Where to this time? Somewhere isolated in the middle of an ocean—Tahiti, the Seychelles . . .

He settled for the latter and emerged with the girl at another Victoria, on the island of Mahe, and here nobody was waiting for him. Almost unable to believe he was truly free, Hans emerged cautiously on to a nearly deserted concourse, seeing broken windows around him, much litter blowing in a breeze, a dark man asleep beside a refreshment stand. Nobody else.

He heaved a vast sigh and let go of Anneliese's arm.

"I'm sorry. I'm most terribly sorry, I really am. But you saw what happened everywhere else we've been until now, didn't you?"

Rubbing the spot where his fingers had clamped, viselike, she said sullenly, "All I saw was that a lot of people recognized you and said they wanted to give you a message. I don't know why you have to run away from them. I wish I'd never said I'd come with you. You seem to be treating me more like—like baggage than a person!"

"But the only people I can think of who might want to hound me are criminals like the one who burgled my home and then burned it down—" Hans felt perspiration spring from every inch of his skin.

"You have criminal gangs who can be ready and waiting any place you go, ambushing innocent people

even though they can go right around the world in next to no time? Then modern life is even more abominable than I already thought it was."

She gave him a defiant glare, her chin jutting at a sullen angle. His heart sank. Searching for some fragment of consolation, he could find nothing better than the fact that for the moment at least she had forgotten about her stuck zipper.

He soothed her by degrees until she relaxed enough to agree to accompany him from the concourse and find a place to lodge. The sound of their altercation had woken the man at the refreshment stand. He stood up, rubbing sleep from his eyes, and offered his wares—stale-looking pastries and flyblown fruit, old bottles refilled with sickly soft drinks colored repulsively bright red, green and purple.

Hans refused, but inquired without much hope whether there was a hotel to be found.

The man shook his head. "No, sir. Is not hotels here any more. But is a lodging house I know—good, cheap, clean. Is my sister-in-law who runs it. I write address and give directions, too."

He seized a stub of pencil, tore the corner off a yellow sheet of newspaper and in slow, awkward capitals wrote two hard-to-decipher lines. After going through the data with him, Hans thanked him and

was about to take Anneliese's arm again when he realized the man was holding out his palm with a look of annoyance.

Oh. Of course, a tip. He felt in his pocket and produced a couple of coins, suddenly remembering with a wrenching sensation that he had almost no money on him. He had forgotten to pick up his spare cash when he last had stopped at home.

SO HE would have to go back yet one more time—and if there were one place where Mustapha would beyond doubt have planted his agents, it would be at Valletta. It wouldn't be possible for the Arab to get past the privateer in Hans's own skelter, but of course the house still had ordinary doors and windows . . . No, wait a second. Hadn't Vanzetti promised that the police would keep a watch on his home? So it would probably be safe to go there after all. And if it proved to be otherwise there were alternatives—he could, for example, go to the Recuperation Service headquarters and draw some money there, payment in advance for the compassionate leave he had applied for. He breathed a little more easily as he led Anneliese out of the concourse building, along a littered street past shabby buildings to the shabbiest of them all, obviously the “good, cheap, clean” lodging.

The woman who came to answer

Hans's knock at the rickety front door smiled and bobbed and escorted him and Anneliese indoors, explaining that yes, luckily there was room for someone else because one of the long-term lodgers had just died and nobody had yet rented the vacancy. She showed them into an ill-furnished, cramped room with a double bed, a washstand so ancient that had he come on it in the course of his work Hans would have thought it worth recuperating and selling as an antique. A big wardrobe stood lopsided against the wall because one of its legs was missing.

Anneliese stared about her in dismay. Thinking it was because of the state of the room, Hans began apologetically to explain about the collapse of the hotel business the world over, so that in most places one could find nothing better than this sort of squalid accommodation—but that wasn't what was on her mind.

“There must be two rooms,” she ordered. “Find a place where there are two rooms. I will not accept this—we are not married!”

And before he could conjure up an answer she was storming at him, unleashing a flood of words that battered his ears until his skull seemed to be ringing like a bell.

“Every man I have met since I came from Brazil is the same. You, too, whom I thought honest and moral. I was a fool to believe your lies and I should have known

better! All you can think of is your filthy sinful lust and ways you can cheat a girl, deceive her, force her into a corner she can't escape from—that's what you do! I said I'd come with you because you promised to show me the beautiful side of the modern world, places where people are happy and kind and life is sweet—and what have I seen? What have you brought me to? A horrible shabby filthy stinking townful of slums, that's what! Get me away from here this minute—and this time show me what you promised!"

Interface S

*Many people sit at home
gnawing their nails,
unable to decide where to go.*

*An ass—claimed Buridan—
starved to death
equidistant between bales of hay.*

*Buridan however was human.
Other creatures
aren't really as stupid as mankind.*

—Mustapha Sharif

ALL HIS castles in the air were collapsing around Hans. He could barely believe that so short a time had transformed Anneliese from the shy, seemingly affectionate child who had been so delighted to find someone at Aleuker's to whom she could talk—albeit slowly and

with many verbal footnotes—in her own language. Now she seemed to have turned into a thoroughgoing virago, tongue-lashing him with more imagination and more sheer anger than Dany had ever achieved.

Could this be the fruit of the ideals to which she had been raised? It seemed incredible. How could people get along with one another if they thought this attitude the right and proper one?

And then he remembered sickly that they hadn't gotten along with one another. They had been so crazy that they had invented weapons capable of wiping out whole cities at a blow—and they had used the skelter first of all to commit theft, murder and sabotage.

Dazed, he could do nothing except comply with Anneliese's demands. Walking back to the skelter concourse, to the accompaniment of her sniffs and snorts of contempt at the state of this rundown dirty little town, he searched his mind for some other place to which he might risk taking her.

Tahiti had crossed his mind a little while ago, he recalled. Would that be tolerable by her standards? Most likely not, because it was a clean smart place patronized by skelter tourists, people taking long vacations with plenty of money in their pockets. If Anneliese had been horrified to see people at the Balinese refuge going about, clad only in kilts and baldrics, carrying out their daily tasks, how much

more offended would she be at the sight of women and gay men sprawling naked on the beach in the hope that they would attract partners for the night?

He didn't know. He literally had no idea. He couldn't get hold of the lunatic standards she lived by.

Was there a skelter-using community conservative enough to satisfy her anywhere on the planet? Well, if there were it would have to be in Australia. The problem was not that no one at all nowadays adhered to Anneliese's sort of principles. It was that the communities where her beliefs were in force were disdainful of the skelter or terrified of it. He had never been to any of them apart from making a brief tour of the town near Mustapha's home—during which so many people had made signs at him to ward off the Evil Eye—or had spat at the prints he left in the dust—that he'd lost count in a few minutes.

Did he know the code for any place in Australia? The answer was no. He would have to consult a directory and pick a spot at random.

THERE were a few more people in the concourse now, half a dozen altogether, including a couple of curious children buying soft drinks at the refreshment stand. He waited until they had been served, then asked about a directory. At sight of him the salesman's face fell.

"You did not like the home of my sister-in-law?"

"She—she had only one room and we wanted two."

A pause, during which the salesman looked him over with mingled amazement and contempt: if a man can persuade a girl so pretty to travel with him, how can he not share her bed? A good question . . . But he moved at last, pointing toward a booth Hans had not noticed on the far side of the concourse. The salesman said there was a directory in the booth.

Hans expected Anneliese to come with him—she declined and sat down firmly on a vacant bench.

"You make me walk too much—my feet hurt. And this is the world where they told me you never need to walk because you have the skelter."

So Hans went to the directory booth alone and leafed through a tattered, out-of-date volume with many pages missing. The purpose they had been put to was plain from the stench that arose from a corner of the booth. The floor had subsided—there was a hole in it and people had used it as an impromptu latrine.

Half-deafened by the buzz of flies that circled the spot, Hans eventually located and memorized the code for the public skelter outlet in Alice Springs, Australia, which—so he seemed to remember—was currently flourishing and certainly must be as conservative as

most of the subcontinent. He headed, sighing, back toward the bench where he had left Anneliese—and realized with a shock of horror that she wasn't there.

Staring frantically around, he spotted her approaching the skelters, talking animatedly to a man in neatly tailored clothes who certainly had not been on the concourse a few minutes ago.

He shouted at her. Glancing fearfully at him, she clutched her new companion's arm and whispered something that impelled him to hurry her into the nearest booth. Before Hans could catch up, a wash of bright blue light signaled their departure.

To anywhere.

FOR a long while Hans simply stood there cursing, his hands clenched so tightly he fancied blood would run from the tips of his nails. The children regarded him in amazement, sucking their soft drinks noisily through straws. Several other people also gazed at him.

At long last he managed to gather his wits and say to the air, "He's not going to get away with it. I'll see him in hell first!"

He strode to the skelter by which Anneliese and the unknown man had traveled and punched a code he had only used once before but remembered almost better than his own.

It belonged to Mustapha Sharif.

"HHE HAS come, effendi," said Ali and stood aside from the doorway of the Room of Leopards, so that Hans could pass him, shouting wildly.

"What have you done with her, damn you?"

Mustapha, seated cross-legged on a pile of soft cushions, raised the brow over one sightless eye.

"Hans, good day to you," he murmured. "I have been half-expecting you. Be seated and let Ali serve you some refreshment."

"I want to know what you've done with Anneliese!"

"You have become separated from her?"

"Lost her, as you damned well know."

"To be strictly accurate, I didn't know. But I'm glad. That is as it ought to be."

"You—" Hans's voice failed him—he recovered it with a tremendous effort. "You have the gall to sit there and say she didn't go off with one of your agents?"

"My dear fellow, am I a miracle-worker?"

Bewildered, Hans wondered if he were losing his sanity. Had he not himself found it hard to believe that Mustapha could have his servants ready and waiting at every public skelter on Earth? And yet . . .

"You're not denying you sent your chief scribe Muley in search of me?"

"Indeed not, and in fact he's on his way to join us. I just heard the scuffle of his shoes at the end of the corridor. He almost caught up with you twice, I believe, and I'm puzzled, not to say offended, that you decided to avoid him. You made things even worse, I gather, by lying in order to persuade the monks and nuns at the Balinese Way of Life refuge to lie, too. Ever since our first meeting you've claimed to follow that Way. It is sad to realize that a friend of long standing has been telling you untruths, isn't it?"

Giddy, Hans had to sit down—the alert Ali made sure that a stool was ready behind his legs.

"But if Anneliese didn't go off with someone you sent after us—"

Muley entered silently. Mustapha acknowledged his bow with a brief nod.

"Explain the circumstances," he invited Hans. And, having heard Hans's broken summary, had to chuckle.

"Hans, Hans, I suppose I should feel flattered because you thought all that was my doing!"

"Whose, then?" Hans demanded furiously.

"Who but a senior official of the Skelter Authority could ensure that watch was being kept, world-wide, for a single man? Frederick Satamori was here—recovering from the injuries he suffered at Chaim Aleuker's—at the very moment you and I were talking at the house in

Sweden, the conversation you ended in such an unceremonious fashion." Mustapha had discarded his bandage, but now he raised one hand to part his hair and display a piece of bright pink sticking-plaster covering his scalp wound from the poker.

"But Anneliese wouldn't have gone off with a total stranger, even if he were an employee of the Skelter Authority—"

"What grounds do you have for saying that she would not?" Mustapha retorted. "During the few brief hours of your acquaintance at Aleuker's party, had you become such old and intimate friends? No, on the contrary—I say you have one hundred per cent evidence that that's exactly what she would do. Haven't you realized yet that she is deranged?"

"I—" Hans's jaw dropped.

"I can see you had begun to suspect as much and were denying the truth to yourself."

With renewed fury: "So you told Satamori to find me and Anneliese? Is he pimping for you now? You want her for yourself, is that it? Well, I can tell you—"

"Never in my entire life, and I'm no longer a young man," Mustapha said thinly, "have I been so mortally insulted. And I am not the only one to take offense. Look at my servants. Can you not read in their faces that they would cheerfully seize you and drag you screaming up my tallest minaret

and pitch you to your death on the flagstones below? It is as gentle a fate as you deserve. But you are yourself insane now. Possibly you always have been. In that case I am to blame for having befriended you. So I will answer with fair words. No, I did not set Satamori on your trail. Because of the loss of Chaim and other crucial members of our ruling elite he was eager to track down those who solved the clues to Chaim's treasure hunt. You were the first person to do so and he wanted to get in touch with you and offer you a better job, a more responsible and higher salaried one. Instead you let yourself become obsessed with a mentally disturbed girl, barely more than a child. You let your wife sacrifice herself and gave perjured evidence about her death. You—"

"Lies, lies!" Hans shrieked.

"Ali, serve our visitor a tranquilizing draught. It will soften his panic and enable him to think and talk more like his normal self."

Ali proffered an engraved brass cup. Hans swept it aside, crying, "Out to poison me now, are you?"

"Ali, fill two cups. The strain is telling on me and I, too, would welcome some of that drink. If you choose which cup I should take, will that content you?" Mustapha added to Hans.

Hans licked lips gone suddenly dry. Eventually he nodded.

"Good. I might add that it's just as well that you made the choice

you did—because if I had to kill you, I would. I had your predecessor killed when he started pilfering things from the houses we visited together. I do not wish to wear a bracelet. But I do wish to make several things clear to you. When your mind is settled enough to take them in I shall continue with my explanations. I would rather convince you than have your death on my conscience."

Interface T

*I have noticed
how deep in litter is the world.*

*It is because
nobody cares about anywhere
now.*

*I don't live here!
they say, and take the skelter.*

*But they do.
They do live here. This is Earth.*
—Mustapha Sharif

PERHAPS Mustapha was more accustomed to whatever was in the tranquilizing draught—at any rate, he seemed unaffected by it when he had drained his cupful. By contrast Hans was pervaded by a sudden and alarming detachment. He felt as though his ego had separated from his body and now floated above his head, observing himself, controlling his movement and

speech but from a distance like some puppet master.

He said, enunciating carefully, "Well—explanations! And I warn you—make them good."

A yawn unexpectedly stretched his last word. He converted it into a gasp.

Mustapha said, "You must have wondered what it is I gain from visiting abandoned homes with you."

"Yes, often."

"I obtain insight into the process that led to my being blinded."

"How—No, I shouldn't ask. The question is too personal."

"On the contrary, you should have asked long ago and you would have made more sense of your life. I was blinded because I was looking directly toward a nuclear fireball. It was the bomb that destroyed the Suez Canal. Who fired it doesn't matter. But its glare passed, as if focused, straight through my corneas, which are as you have seen unmarred. But on each of my retinas the point at which the optic nerve sets in was cicatriced, converted in a fraction of a second to useless scar tissue. It is because of that experience that when I go to an abandoned home belonging to people who lived by the old standards, I find something different there from what you find. I find a distillation of what used to disguise the cruelty and brutality humans were capable of. You go to such places in a spirit of envy and

resentment. You wish you could have lived as they did, not realizing that it would mean paying the spiritual price they paid. At heart you belong to that old and cruel world."

"No—"

"Do you not? Do you really not? Because I do."

Confused, Hans shook his head. The sensation was like twitching marionette strings.

Mustapha continued: "I belong so completely to that old world, despite all my efforts to identify the foul poisons it has left in the collective psyche of mankind, that when I heard Satamori was going to search for you I gave way to panic. I could foresee your betraying me. It was not until I sent for and heard again a tape I once compiled about you, the one that documented your past history and impelled me to decide that you and I would become partners in crime, that I realized how stupid I was being. At first I was thinking of catching you and tying you up, as you tied me—only better. You made a terribly clumsy job of those bonds, you know. Then I realized that was betraying my own vision of man's ultimate nature—and in the upshot, I'm delighted to say, my better judgment has been proven right. You did come here of your own free will and you have become separated from Anneliese to whom, as I told you, only harm could come from your relationship—"

"Stop, stop! That isn't true—"

"Ah, but it is. Think hard, Hans." Mustapha leaned forward, his sightless eyes seeming to bore into Hans's very brain. "Think first about your own situation. Do you feel the world has treated you unjustly?"

"Yes, damn it, yes!" Hans felt tears start to his eyes. "I haven't done any real harm to anybody. I was simply taken aback and miscalculated about a couple of things. It isn't fair that I should have been punished for—"

"Who punished you?" Mustapha slipped in the question with the neatness of a physician using a hypodermic needle. "You are guilty of a major crime, as the standards of today measure crime. You're a code-breaker. So am I."

"But I became one only because I wanted to come to grips with the past, document it, leave my reports for the archeologists of the future—"

"Not true. If that had been the truth, could you not have gone to your superiors and said that in addition to working as a recuperator, a legal scavenger, you wanted—in your own time—to garner information, too? They would never have accorded me that privilege. But to you, a trustworthy and indeed a respected colleague, they would have

said yes. You could have had discontinued codes with full legal authority. But you didn't want that. You wanted to be regarded, albeit after your death, as a man who dared to defy society's rules."

"That's not so! They would never have let me—"

"Damnation, man! You met the people, or some of them, who are running Earth these days. You met Satamori and Aleuker and Pech and the others at that ridiculous party. For all I maintain that they're going about saving mankind the wrong way, inventing new rules and regulations when what we most desperately need is to apply common sense instead of inflexible principles that become out of date in a year or two—for all the disagreements I've had with them, I have to concede them this much: they're the most open-minded people ever to achieve such power in the whole of human history. You don't know what Satamori said when he mentioned that he was going to track you down, so I'll tell you. He said, approximately, that it wouldn't matter if you proved to be a coward, as was suggested by the speed of your flight from Chaim's home. What counted was that you were plainly a quick thinker."

A faint moan escaped from Hans's lips. He tried to stop it and could not.

His voice colored by pity, Mustapha went on more softly, "There's

one thing you still have to accept, my friend. You are acting as though you became the—the proprietor of this girl Anneliese. You could never have done so. You could at best have been her—keeper.”

“But she didn’t seem to be mentally disturbed—”

“No more do you, from most people’s standpoint. Less than—” Sensing that Hans was drawing breath to interrupt, Mustapha raised one hand to forestall him. “Less than I do, was what I was about to say. I know for a fact that Chaim Aleuker believed me to be a dangerous man. He suspected me of vaulting ambition, of a lust for power, of degrees of hypocrisy unparalleled in the worst of the olden days—and with all respect to his memory I must argue that he was wrong.

“Honestly, my friend, how could you imagine that someone in Anneliese’s plight could be less than seriously deranged? Your wife Dany, unlikable perhaps, was still capable of functioning as a person, more or less, capable of making her own friends and even of being singled out as a recipient of one of those silly treasure hunt invitations. Surely with her before you as an example of how deeply deformed a personality can become—thanks to the trauma mankind has underbone—you ought to have seen how much more seriously Anneliese must have been affected? *A priori!*

And you ought also—” Mustapha’s voice dropped—“to have applied the same lesson to yourself.”

Hans gulped air, but could not answer.

“**A**S FAR as I’m concerned,” Mustapha went on, “I am ashamed of what the old world did to me and I want the world to know my feeling. I’m ashamed that there was so much greed and envy and that greed and envy are in my nature, too. I’m ashamed that people had power without responsibility and since I have power I strive to act in a responsible manner, not by accepting government posts but by listening when those in need come to me, by helping those who cannot help themselves, by admiring the petty achievements of those who have no better and yet do not deserve to have nothing at all. Possibly I am respected—I believe I am. But that is by strangers, people far away whose only contact with me is through what I have written. What counts above all for me is that I know I am liked by the people who live in the town just beyond the far wall of my home.” He thrust out a chubby arm and slapped what happened to be the head of one of the painted leopards, bowed to the gutting of a deer.

“It is because those who had far more than I dare ever dream of having,” he concluded, “chose to use their wealth in such abomin-

able ways, that I would rather be regarded as eccentric than join the ruling elite. But that is my personal opinion. I have no right to instruct you to follow my example. What I, or any other man, may justly do is say this to you: you have misjudged yourself, taken the wrong measure of yourself. As a result you have a death on your conscience—and your wife's at that. You have a talent and from that flows your chance to atone. You dreamed of making the girl subservient to you by trapping her in a web of cajolment—but I went over that and you answered me with a blow on the head. Instead, go to Satamori, accept whatever post he feels you are capable of taking on, dedicate yourself to it. Convert, transform, sublimate your desire for power into a liking for work well done. It is possible. I think that what persuaded me to select you as—I use the phrase again—my partner in crime must have been that I sensed your ability to achieve that kind of sublimation. Now prove me right."

Out of all that long discourse Hans clutched at and retained one key suggestion. Rising, his mind foggy, he said, "You want me to go straight to Satamori?"

"I think it is a wise course of action."

"Very well. Ali, lead me to the nearest skelter and find the code for the headquarters of the Skelter Authority."

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LESS than five minutes later he was there. And a young man appeared to him from another skelter after a safe interval and faced him through armor glass from behind a reception desk which—Hans didn't have to be told—concealed guns. The pattern was the same at that point in Recuperation HQ which had to be open to the public. When the arrival signal sounded, what had entered the room might not be a person, but a saboteur's bomb.

He identified himself and added: "I gather Dr. Satamori has been looking for me."

The young man's face brightened.

"I'll say he has. I never before had to issue so many copies of a single person's picture. We've been standing by at every public skelter outlet to try and locate you, but I guess you haven't felt much inclined to travel. I heard the sad news about your wife—if you don't mind my mentioning that? Some people do mind, some don't. The reaction seems to be culturally dependent. Well, what can we do for you?"

"Show me to Dr. Satamori, I guess," Hans muttered.

"Well, right this minute he's not here," the young man said. "You may have heard Dr. Pech of the Advancement Authority is still hospitalized as a result of what happened at Chaim Aleuker's?"

"I was there."

"Well! So that's how you met the

chief. Ah—as I was saying, Dr. Satamori has gone to call on Dr. Pech in the hospital, but if you'd care to wait he said he wouldn't be long, maybe another twenty minutes at most. Would you prefer to come back? Or have him call you?"

A vast weariness was pervading Hans's mind now. The echo of the advice he had been given by Mus-tapha was fading away, as though the effect of the tranquilizing drink had muted the impact of the words. Overlaying it now were deep, deep emotions—frustration, disappointment, horror. He said gruffly, "No, I guess I'd rather not wait. But if you can give me a piece of paper and an envelope I'd like to leave a note."

"Surely. Here you are."

He sat down, wrote the note—no more than ten lines—reread it and sealed the envelope and handed it over. Then he headed for the skelter without another word.

"Hey," the young man said and then much louder and far more urgently, "Hey! That's not—"

He had a clear sight of the nine-digit code Hans was punching. And it was not one you'd expect a traveler to select.

"I TRIED to stop him before he finished composing all nine digits!" the young man mourned. "One gets into the habit of automatically glancing at what people are punching, just in case—"

"Stop blaming yourself," Satamori said glacially, seated at his desk and reading for the third or fourth time the note Hans had left. "You weren't to know in advance he was punching the code for an incinerator."

He glanced at the skelter in the corner of his office and could not repress a shudder.

"That will be all," he added and the young man went out, shaking his head as automatically as a porcelain mandarin.

Alone, Satamori stared at the note and tried to consult in his mind with Chaim Aleuker, with Boris Pech, with the miserable girl whom his agents had luckily caught up with in—of all places—the Seychelles and who would probably be fit to take her place in society in a few years' time after treatment by Karl Bonetti. He fancied he could hear all their voices, blended into a single voice, inside his head. They agreed, they concurred, they were unanimous.

The note said that Mustapha Sharif had for years been guilty of selling illegal codes to abandoned houses. Several of the actual codes were listed.

"But I know him," Satamori said under his breath. "I respect him. More importantly, I like him, even though we're forever arguing. To see him braced? No, to treat him so would be unworthy. Whatever his reasons, I'm sure they were justified. And he's always said,

rightly, that we must never put an absolute straitjacket of rules and regulations around the world again. Maybe what brought us to the Blowup was the simple operation of an inflexible natural law. Equally, it might have been the excessive constriction of inflexible man-made laws. Man likes to be free. When he's fettered he gets angry and lashes out."

He reached his decision. Rising, he walked to his private skelter and tossed the note to its floor. Then, at the full stretch of his arm, he composed the same nine-digit code that had taken Hans Dykstra on the longest of all journeys so far made possible by the skelter—the longest that ever would be possible, indeed—and the note followed Hans into eternity.

Satamori returned to his desk. There was as always much work to be done.

Interface U

*You
stood before the skelter
thinking it was new and strange
to confront so many options*

*You
overlooked the fact
that every dawn since time
began
has lighted uncountable
choices*

—Mustapha Sharif

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